Multi Criteria Analysis Assessment Report

Avondale-Southdown Project, 2025-26

KiwiRail

Workstream: Fatal Flaw Analysis

About the Avondale-Southdown rail corridor

The Avondale-Southdown rail corridor will play a key role in transforming both passenger transport in Auckland and freight movement in New Zealand.

Acquired in the 1940s as part of an expansive rail plan for the city, the 13km east-west ribbon of land was intended to be developed for both passengers and freight. Substantial efforts over the last 80 years have ensured the route remains allocated for rail and an option for future.

The 30-year Strategic Rail Programme, launched at the end of 2023 by KiwiRail and Auckland Transport, clearly identified the Avondale-Southdown development as a critical part of Auckland's and New Zealand's future rail network, required in the next 15-20 years. The programme details the upsides of bypassing freight around the city centre (including reducing congestion), the benefits that the wider metro network gains from the addition, and the communities that would become better connected for future.

The potential line's inclusion on the Government's Fast-Track Approvals list in 2024 further reinforced the importance for this rail connection – often called "Auckland rail's missing limb".

Across 2025 and 2026 our Strategic Metro Investments team, with the help of expert agencies and consultancies, is undertaking the most thorough feasibility and scoping study of the rail corridor to date. Their primary objective is to protect the existing rail designation, which is due to lapse in 2029, and to progress initial planning. Additionally, they'll be engaging with key stakeholders and compiling information about the corridor development opportunity.

While not yet funded, the overarching vision is to build the line and deliver the many benefits of improved rail infrastructure - for local communities, for Auckland, and for New Zealand - for generations to come.

Find out more on our website: kiwirail.co.nz/avondale-to-southdown

About this report

Before beginning detailed work on the Avondale–Southdown Project, KiwiRail conducted a high-level Multi Criteria Analysis of the proposed route and transport mode, using a framework aligned with NZ Transport Agency guidelines. This early screening step was designed to inform current workstreams and support the development of a future business case.

In parallel, the team has hosted local community leaders and stakeholders on tours of the Avondale–Southdown rail corridor. These tours aim to build understanding of the potential line, its benefits, and the process being following to advance the project.

During these engagements, questions were raised about whether the existing designation remains the best route, whether heavy rail is the most suitable mode and what other options have been thought about.

This report outlines the full analysis process, presents the results, and demonstrates that alternatives have been properly considered.

Given the scale of the Avondale-Southdown project, much more detailed investigation, funding and resource consenting processes are required to understand when implementation might be feasible.

Summary of results

Preferred mode:

Rail (passenger and freight)

Rail emerged as the strongest option overall due to its higher potential for urban intensification, stronger social and cultural benefits, freight capacity and alignment with national transport priorities - while also being the only mode that significantly improves rail system resilience.

Preferred route – eastern end:

Existing rail corridor (option 1)

Alternative options face significant cost, consent, and design challenges despite some better outcomes in other areas. The designated route offers stronger economic potential, investor appeal, and fewer implementation barriers.

Preferred route – western end:

Existing rail corridor (option 4)

Constructing the rail line within the existing designation is the most viable option, offering the strongest economic and strategic benefits with fewer technical and cost challenges than alternatives, despite some trade-offs in other areas.

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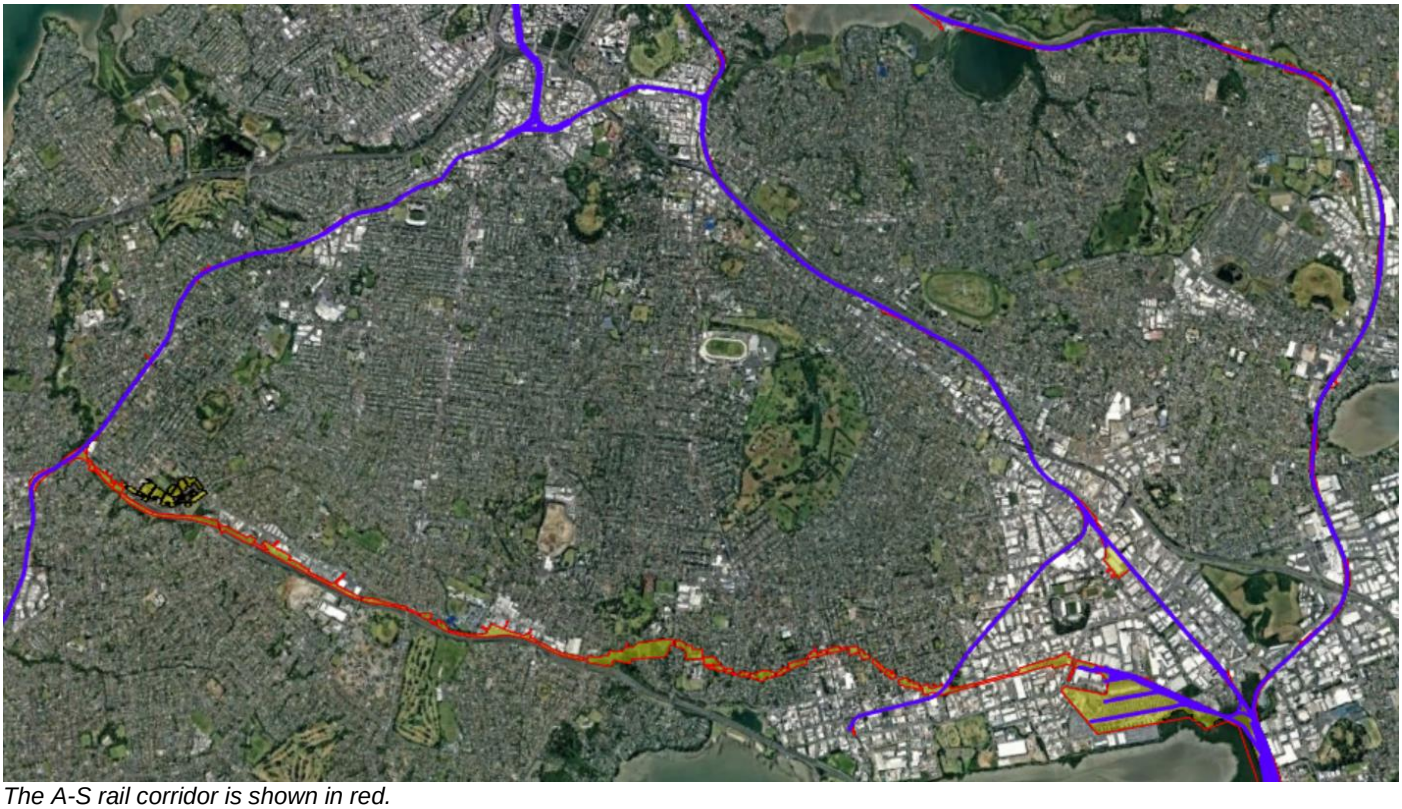
Introduction / Background

Avondale to Southdown Rail Corridor

The Avondale to Southdown (A-S) rail corridor is a proposed nationally significant transport link that would play a critical role in shaping a more connected, resilient, and future-ready rail network for both Auckland and New Zealand. Strategically positioned across the Auckland isthmus, this corridor would establish a direct east-west rail connection between the North Auckland Line (NAL) at Avondale and the North Island Main Trunk (NIMT) at Southdown. By linking these two major rail arteries, the corridor unlocks substantial benefits for both freight and passenger rail, including increased capacity, reduced travel times, and improved integration with existing and planned urban developments. This enhanced connectivity is vital for accommodating Auckland's growing population, freight demand and directly delivers on the Government's strategic transport priorities of economic growth and productivity, increased maintenance and resilience, and value for money. It would also be a significant enabler of the Going for Housing Growth programme by enabling greater intensification in the Auckland Isthmus.

Figure 1: Avondale-Southdown Designated Corridor



The A-S rail corridor is shown in red.

One of the most crucial functions of the A-S rail corridor will be the role it will play in improving resilience of the Auckland and national rail networks. Currently, all rail services travelling between Auckland's western and southern regions must pass through the Newmarket Junction, a single operational chokepoint known for its prominent levels of congestion and sensitivity to disruptions. Any incident, maintenance activity, or capacity constraint at Newmarket can cause significant delays and ripple effects throughout the entire rail network, impacting both freight and passenger services. The A-S rail corridor provides an essential alternative route, allowing freight and some passenger services to bypass this bottleneck entirely. This increased routing flexibility improves operational reliability, reduces vulnerability to disruptions, and supports future service growth by enabling more efficient scheduling and network optimisation for both freight and metropolitan rail. In doing so, the corridor strengthens the overall resilience and robustness of New Zealand's key rail infrastructure, which is crucial to supporting long-term economic and population growth.

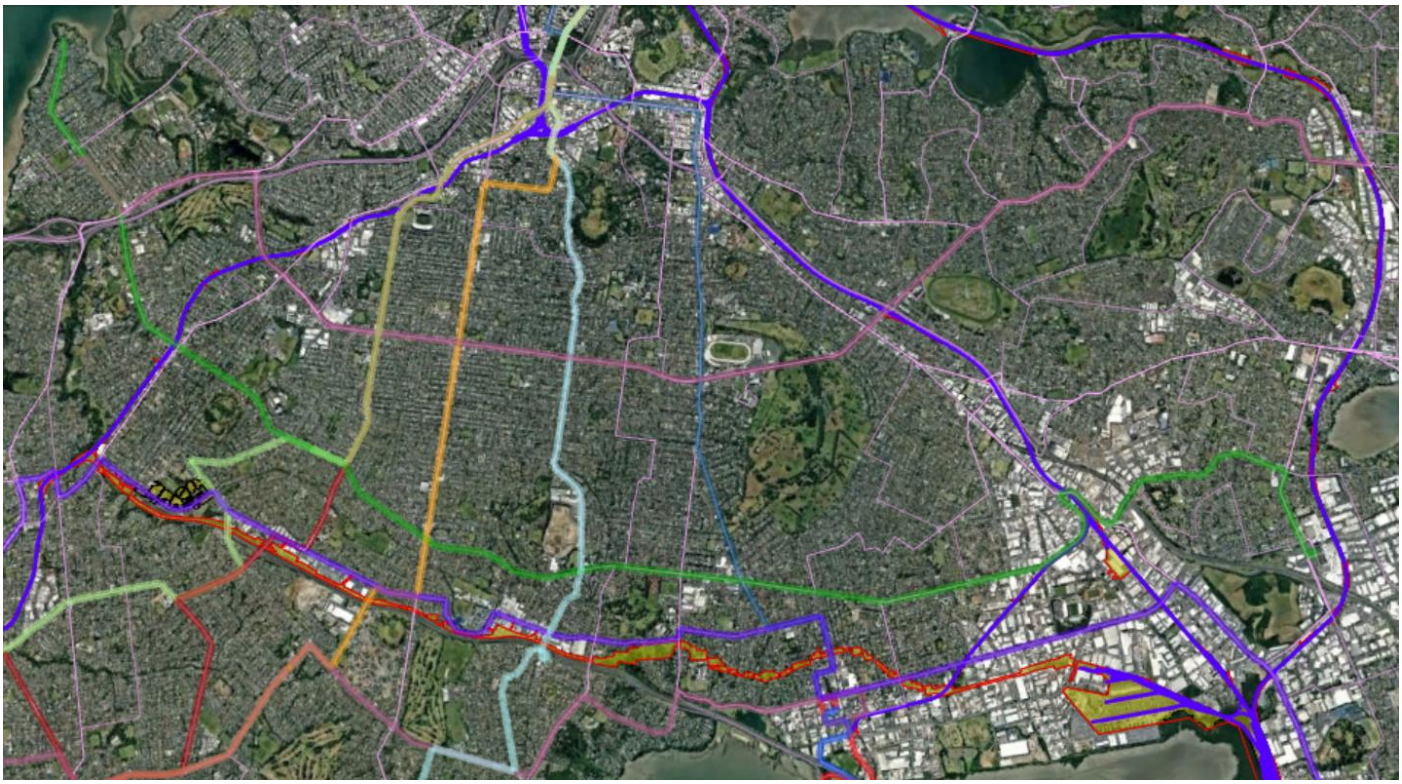
From a national freight perspective, the A-S rail corridor is a vital link within New Zealand's National Freight Network, offering an alternative route that bypasses Auckland's congested city centre. This reduces the need for freight trains to pass through the busy Newmarket Junction and inner-city rail network, enabling more efficient and reliable movement of goods including to/from Northland and Northport. By facilitating a greater shift of freight from road to rail, particularly removing heavy trucks from key arterial roads and motorways, the corridor helps reduce congestion, lower transport

emissions, and improve overall road safety. Given Auckland's role as the primary gateway for the upper North Island's freight triangle connecting Auckland, Hamilton, and Tauranga, enhancing rail freight capacity through this corridor will directly support national supply chain resilience and efficiency. This improved freight flow not only underpins economic productivity and GDP growth but also strengthens New Zealand's export competitiveness by enabling faster, more reliable access to ports and markets.

For urban Auckland, the corridor presents a significant opportunity to introduce a reliable, high-capacity east-west rapid transit corridor that directly connects key communities including Avondale, Mt Roskill, Hillsborough, and Onehunga. Currently, these suburbs are underserved by rapid transit options, relying heavily on road-based public transport and private vehicles, which contributes to congestion and longer travel times. With the Auckland Unitary Plan designating these areas for substantial residential and commercial intensification, demand for efficient, frequent, and accessible public transport is expected to grow sharply.

A dedicated rail link would reduce reliance on private vehicles, easing congestion and lowering emissions. It captures trips that currently lack viable alternatives to driving, shifting travel demand to more efficient, lower-emission modes. The corridor connects key employment hubs, schools, healthcare facilities, and recreational areas, improving access for communities across the isthmus. This supports economic productivity, inclusive access, and aligns with GPS priorities for economic growth, safety, resilience, and value for money.

Figure 2: Auckland Isthmus Public Transport Network



The Avondale to Southdown rail corridor overlaid with wider rapid and frequent transit connectivity.

Figure 3: Housing Development Areas.

The Avondale to Southdown rail corridor within urban development context.

Urgency of Action

While KiwiRail owns most of the land and holds an existing rail designation, this is set to lapse in August 2029 placing Auckland's only protected east-west rail corridor at risk. Recognising the strategic importance of the corridor, KiwiRail is undertaking further work to assess costs, benefits, and potential private sector investment opportunities to support an extension of the designation.

Allowing the designation to lapse would undermine decades of planning, would constrain future passenger capacity (without which, it will not be possible to fully utilise the capacity of the CRL) and the ability to shift freight off roads particularly across Auckland's narrow isthmus, where alternative corridors are limited. Without action, more freight would be forced through already constrained nodes like Newmarket and the inner-city network, increasing congestion and impacting passenger services.

You can find out more about our 30 year Strategic Rail Programme and how the A-S rail corridor fits into it here: www.kiwirail.co.nz/our-network/our-regions/amp/strategic-rail-programme/

Next steps

Over the next 12-24 months KiwiRail will progress the following activities:

- Produce an **information memorandum** summarising project outcomes, costs and benefits, to help provide a case for further investigation
- **Stakeholders and community engagement** to understand needs, concerns and opportunities
- Undertake a **market scan** to assess private sector interest and potential delivery models

Longer-term actions include:

- **Business case development**, including detailed analysis of options

- **Protecting the existing designation** which expires in August 2029 following Resource Management Act processes

Both of these are significant undertakings, requiring robust technical investigations and extensive community consultation.

Purpose of the Workstream

The purpose of this workstream was to assess potential options and reconfirm the general route alignment and mode of transport for the A-S rail corridor by applying a coarse Multi-Criteria Analysis (MCA) process. This level of assessment was appropriate and robust for the current planning stage.

KiwiRail initiated this MCA to assess the existing A-S rail designation compared with plausible alternatives to determine the most appropriate corridor alignment, and to confirm the most suitable mode of transport for achieving the long-term investment objectives of this corridor. Given the significant implications for land use planning, infrastructure investment, and network integration, the workstream aimed to provide a clear, transparent, and defensible assessment of options.

To ensure the evaluation was comprehensive and aligned with best practice, the process involved:

- Development of an MCA framework aligned with New Zealand's Transport Agency Early Assessnent Sifting Tool (EAST) and MCA guidance.
- Engagement with subject matter experts (SMEs) from KiwiRail and Auckland Transport.
- Internal and external moderation workshops to ensure consensus, neutrality, and robustness.
- Independent peer review at key stages to confirm the integrity and defensibility of the process.

The outcome of this workstream directly informs future planning and delivery of the corridor, ensuring that KiwiRail and its partners are making decisions based on rigorous analysis, cross-agency alignment, and a shared long-term vision for Auckland's transport network.

MCA Process Summary

KiwiRail initiated this MCA to assess the existing A-S rail designation compared with plausible alternatives to determine the most appropriate corridor alignment, and to confirm the most suitable mode of transport for achieving the long-term investment objectives of this corridor outlined in the Auckland Rail Programme Business Case (ARPBC).

This workstream followed the New Zealand Transport Agency's MCA[1] and EAST guidance[2], using the ARPBC investment objectives and critical success factors to develop a fit-for-purpose evaluation framework. Criteria were rigorously refined through a two-stage internal review and independent external peer-review by Ascari Partners to ensure they were well defined, non-duplicative, and likely to produce meaningful differentiation between options. The external review confirmed that the final framework was robust, evidence-led, and well aligned to the outcomes KiwiRail and its transport partners are seeking to achieve.

A panel of subject matter experts (SMEs) from KiwiRail and Auckland Transport were selected to score the options. Auckland Transport experts were specifically brought in to assess criteria relating to public transport connectivity, demand, frequency, and integration, ensuring those aspects were evaluated by the most appropriate specialists. All SMEs were briefed in a dedicated workshop and received tailored briefing packs. They completed individual scoring based on their expertise and professional judgement, supported by any relevant external sources, which have been documented and referenced.

The MCA scoring was consolidated and moderated through an Internal Moderation Workshop held on 17 April 2025, bringing together all SME scorers, a Project Team comprised of members of KiwiRail's Strategic Metro Investments team as moderators, and the workstream team to arrive at a consensus view. An Interim Peer Review followed this, where scoring rationale and moderation outcomes were reviewed to confirm their robustness and neutrality.

[1] Multi-criteria analysis: user guidance – February 2023
[2] Early Assessment Sifting Tool: user guidance

An External Moderation Workshop on 23 May 2025, involving representatives from KiwiRail, Auckland Transport, New Zealand Transport Agency, and Ascari Partners provided our partners a forum to challenge and align on the final scores. A facilitator was brought in to ensure the process ran smoothly given the range of disciplines in the room.

Through this process, two options were identified as either fatally flawed or likely to present insurmountable challenges:

- The eastern connection via the Mangere Inlet (Option 3, Figure 4) was considered environmentally and consent-wise infeasible, given its similarity to the challenged East-West Link route.
- The Mount Albert connection (Option 5, Figure 5) raised significant geometric and operational concerns due to the acute angle required to join the North Auckland Line (NAL). Constructing a direct west-facing connection would be extremely difficult, if not infeasible, given the alignment constraints. As a result, any feasible junction would likely be east facing only, requiring a turnback for westbound access. This is a critical limitation to the corridor's purpose, as a west-facing connection is essential to support the investment objective of enabling direct freight movements away from the constrained inner network.

Following final review of all evidence, workshop minutes, updated scoring, and supporting rationale, the final peer review confirmed that the MCA process was robust, repeatable, defensible, and aligned with best practice.

Outcomes from the workshop confirmed that the existing A-S rail designation is the preferred route, and heavy rail is the preferred mode, reaffirming the original purpose of the corridor and allowing forward planning to proceed with confidence.

This assessment provides a strong platform for advancing strategic planning along the A-S rail corridor, reaffirming the designation and mode while identifying key risks and constraints that must be considered in future stages.

Options Assessed

Eastern (Southdown) end options

Given the complexity and community sensitivity of delivering a new rail corridor through Onehunga, it was essential for KiwiRail to explore a range of options for the eastern end of the A-S rail corridor. The area is highly urbanised, with a mix of residential, commercial, and industrial land uses, and any future works will result in impact to the local community. The workstream sought to assess high-level alternative alignments that could potentially minimise disruption, optimise integration with existing infrastructure, and capture the most benefit for surrounding communities.

Three possible alignment options were considered, as shown in the following diagram and discussed thereafter.

Figure 4: Avondale-Southdown eastern alignment options (indicative)

Options alignment is illustrative only.

Eastern end – Option 1: Avondale to Southdown Designation (alignment north of the OBL)

This option utilises the existing A-S rail designation, with the alignment running north of the existing Onehunga Branch Line (OBL) and positioned closer to the centre of the Onehunga township. The corridor follows a largely brownfield footprint through an area characterised by mixed residential and light industrial land uses. This alignment benefits from KiwiRail's existing landholdings, with around 95% of the required land already in ownership, significantly reducing property acquisition risks. The option offers strong planning certainty, as it sits within a long-established rail designation that aligns with strategic network objectives. Its proximity to the heart of Onehunga improves potential integration with the town centre and other modes of public transport. However, the corridor does pass through established communities, which will require careful consideration of community impacts, including noise, amenity, and future land use planning.

Eastern End – Option 2: SH20 Route via Onehunga Bay Lagoon

This option explores a new alignment that follows the SH20 motorway through the Onehunga area, skirting the edge of the Onehunga lagoon before aligning near the existing Onehunga Station. Unlike the existing A-S designation, this route would require a new land designation and extensive land acquisition. This corridor passes through predominately brownfield parcels within established commercial zones, which could offer opportunities for redevelopment but also introduces complexity around property negotiations, land use compatibility and business displacement. While this alignment could potentially reduce direct impacts on residential communities, its benefits must be weighed against the planning, consenting, and property acquisitions risks associated with establishing a new corridor.

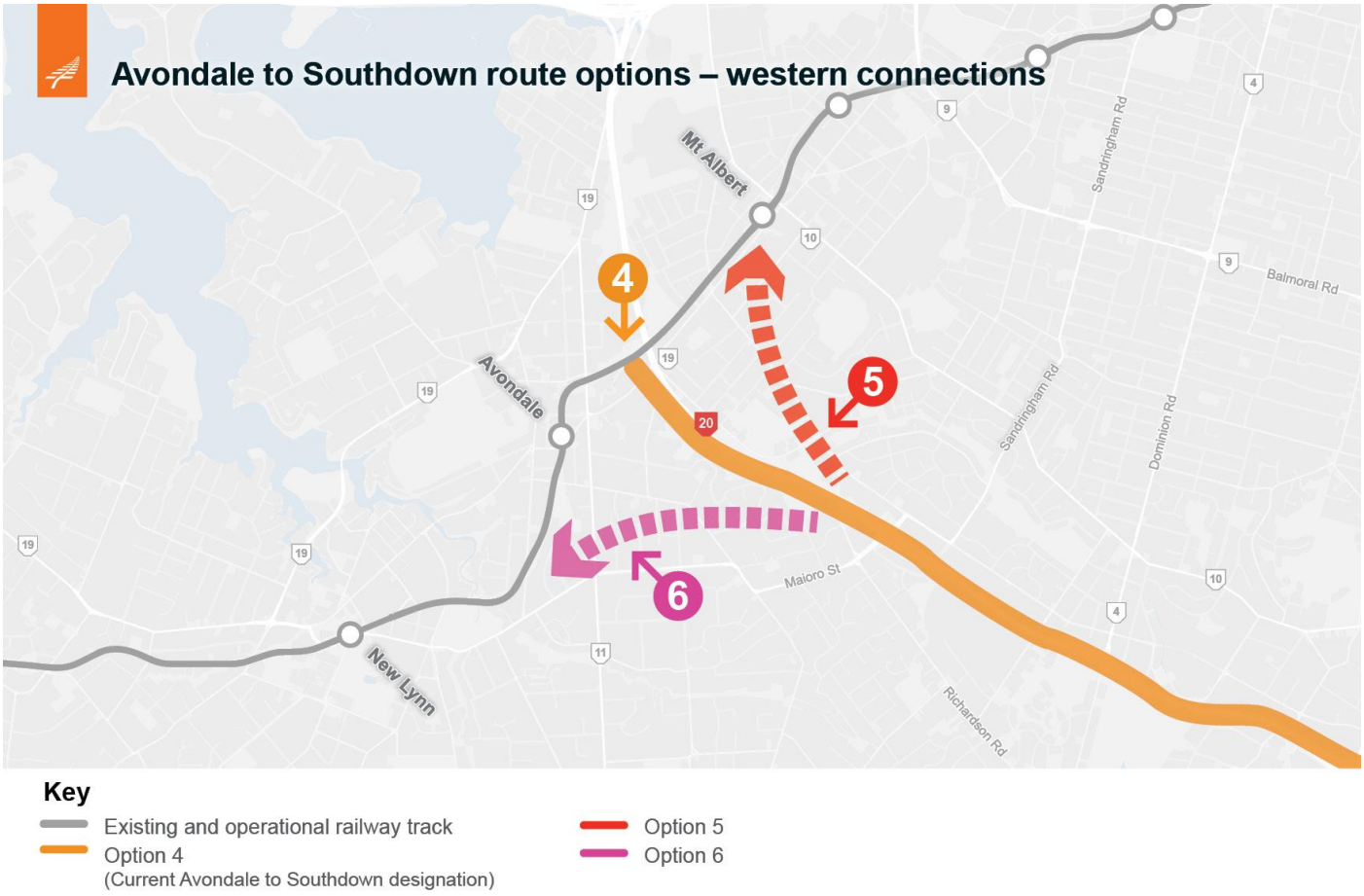
Eastern End – Option 3: Mangere Inlet (EWL)

This option explores a new corridor alignment that continues further south along the SH20 corridor, skirting the southern edge of the Mangere Inlet and following a path similar to that proposed by the original East-West Link (EWL) project. The corridor bypasses the core of Onehunga and instead traverses through commercial and industrial zones adjacent to the inlet. To progress this option, a new designation would be required, and KiwiRail would need to undertake extensive land acquisition. While the route primarily passes through brownfield land parcels, it also lies in close proximity to the sensitive coastal marine environment of the inlet, triggering significant environmental and consenting challenges. Although the option may minimise disruption to residential communities, by maintaining separation from densely populated areas, its viability is severely constrained by environmental risks, consenting uncertainty, and engineering feasibility.

Western (Avondale) end options

At the western end of the A-S rail corridor, three potential connection points to the NAL were considered: loosely Avondale, Mount Albert, and New Lynn. Historically, earlier versions of the Auckland Rapid Transit Pathway and Auckland Transport Alignment Project indicated that a crosstown rapid transit corridor could connect to one of these three locations. As a result, KiwiRail needed to revisit and reassess all three options, indicatively shown in the diagram below, to determine the most appropriate and deliverable alignment.

Figure 5: Avondale-Southdown Western Alignments (indicative)



Options alignment is illustrative only.

Western End – Option 4: Avondale to Southdown Designation (Avondale NAL Connection)

This option makes use of the existing A-S rail designation, providing a direct connection to the North Auckland Line (NAL) near Avondale Station, adjacent to the Pak 'n Save site on New North Road. The corridor sits within a long-standing rail designation of which approximately 95% of the land is owned by KiwiRail. The alignment follows SH20 motorway corridor, which has been future proofed for rail infrastructure, supporting long-term strategic integration. While the existing designated corridor is reserved for future rail use, part of it has been leased for community use as open space pending development for rail. This alignment avoids direct impacts on high density residential or commercial areas.

Western End – Option 5: Connection at Mount Albert

This option explores a new corridor connecting to the NAL at Mount Albert Station. It would require the establishment of a new rail designation and the acquisition of land within a medium to high density brownfield residential area, introducing significant challenges related to property acquisitions, planning approvals, and community engagement. This route would provide the most direct connection into the city, potentially supporting faster travel times and increased service attractiveness, but is likely to be an infeasible alignment for freight. Geometric constraints would require significant infrastructure investment to allow trains to access from the west onto the Avondale-Southdown corridor.

Western End – Option 6: Connection at New Lynn

This option explores a new corridor connection to the NAL at New Lynn Station. It would require a new rail designation and significant land acquisition through a high-density brownfield residential area, raising similar planning, consenting and community disruption challenges as the Mount Albert Option. A standout benefit of this alignment is New Lynn's status as a major public transport hub, with substantially higher passenger demand than either Mount Albert or Avondale. This makes it a strategically important node within the wider West Auckland transport network. However, the alignment would likely require tunnelling under the suburb of New Windsor given the hilly terrain, built-up environment and existing infrastructure constraints. This introduces substantial cost implications and complex engineering requirements. It would also have similar challenges to Option 5 for trains connecting to/from the east (city direction).

Mode of Transport Options

KiwiRail needed to reconfirm if heavy rail[3] is the most appropriate mode of transport for the A-S rail corridor as part of this assessment. Similar to the western end options, previous versions of strategic transport planning documents had not settled on a preferred mode for the crosstown rapid transit corridor. Nor had consideration been given to wider transport needs, including transport of goods. KiwiRail considered four transport modes for this corridor: heavy rail, light rail, bus rapid transit, and standard bus.

When assessing the mode of transport options, it was assumed that all modes, except for standard bus, would operate on the designated A-S corridor. For the standard bus option, it was assumed that existing services would operate on their current routes but at a higher frequency.

Mode of Transport – Option 7: Heavy Rail

Heavy rail provides the highest level of long-term capacity, network integration and freight compatibility. It allows direct integration with the existing NAL and wider national freight network, supporting both passenger and goods services along the corridor. The mode aligns strongly with KiwiRail's existing rail strategy and leverages existing expertise, assets, and infrastructure. While expected capital costs are high, the long-term benefits in terms of mode shift, network resilience, and futureproofing are significant. Heavy Rail is the only mode capable of accommodating freight, thus freeing up the inner-rail network for intensive use by passenger services, making it the most versatile and scalable solution.

Mode of Transport – Option 8: Light Rail

Light Rail offers a high-capacity solution for passenger services but represents single use infrastructure (i.e. does not also support transport of goods). It provides improved frequency and accessibility for passengers and has the potential to shape urban development. However, it does not integrate with the national freight network and would require a new rapid transit network to deliver its full benefits. Integration at the eastern end of the corridor with the existing rapid transit network would be challenging. This would lead to higher capital costs, duplication of assets and operational inefficiencies. In this corridor, light rail delivers lower transport benefits when compared with heavy rail, and its lack of interoperability reduces its strategic value.

Mode of Transport – Option 9: Bus Rapid Transit

Bus Rapid Transit (BRT) is a high-quality bus-based transit system that operates on dedicated lanes, separate from regular traffic, at a high capital cost, albeit a lower one than either rail-based option. This allows BRT vehicles to avoid congestion and maintain high speeds, but it has a lower capacity and longer journey time than rail-based systems. In the A-S context, BRT faces integration challenges with the rapid transit network. Like the light rail option it does not support transport of goods, which is a critical objective for the corridor. BRT may offer shorter-term service improvements, but it lacks long-term scalability, and the multi-purpose function required for this strategic crosstown route.

[3] The term "heavy rail" used in this report refers to conventional or metro rail. The appellation "heavy" has been used in recent years in New Zealand to differentiate with "light" rail vehicles, which are a form of tram. For avoidance of any doubt, heavy rail in this context refers to the same metro trains running on the rest of the Auckland rail network.

Mode of Transport – Option 10: Standard Bus

Standard Bus represents the lowest cost and most flexible mode, utilising existing road infrastructure with minimal capital investment. While it can provide greater public transport coverage, it's vulnerable to road congestion and cannot support freight operations. Standard buses provide flexible and convenient travel options, covering a wide area and connecting various suburbs, making them accessible to many passengers. However, they deliver substantially lower benefits than the three rapid transit modes due to their higher travel time and reduced frequency. These factors make the mode a less attractive travel option and does not deliver a step change in capacity above what exists today. This mode does not address the need for freight transport.

Multi-Criteria Analysis Framework

Criteria & Criteria Description

The workstream followed NZTA's guidance by adopting the Early Assessment Sifting Tool (EAST) and Multi-Criteria Analysis (MCA) frameworks to ensure a robust, transparent, repeatable, and defensible assessment process. In developing the assessment criteria, the framework was aligned with the ARPBC investment objectives and incorporated the critical success factors identified for the project. This approach ensured that the criteria reflected both strategic alignment and project-specific outcomes, allowing for a balanced evaluation of mode and alignment options through a multi-dimensional lens.

The workstream began by drafting an initial long list of assessment criteria and accompanying descriptions, which were then reviewed through the Project Team internal review process. This first review focused on identifying any criteria that were unnecessary, duplicative, or not sufficiently differentiating between options under consideration. Based on this feedback, the workstream revised the list and developed a second version of the criteria and descriptions. This updated version underwent a second round of Project Team review, with a particular emphasis on refining of the word descriptions to ensure clarity, consistency, and the alignment with the intent of each criterion. A significant change to the framework at this stage was to identify whether the criteria were applicable only to the route or mode options, or whether they were applicable to the assessment of both. Following another round of refinements by the workstream, the team confirmed the criteria set was robust, fit for purpose, and ready to be sent to the Peer Reviewer.

Interim Review (1)

The draft evaluation framework was then provided to the Peer Reviewer during the week of 17 March 2025. The workstream requested feedback on several key aspects: whether any criteria were unnecessary, duplicated, or missing and whether any of the existing criteria were unlikely to be differentiating at this stage of the assessment. In addition, the Peer Reviewer was asked to assess the wording of the criteria descriptions, specifically: whether the intent of each criterion was clearly captured, whether the language was understandable to readers, whether it would support neutral and balance scoring, and whether each criterion could feasibly be assessed based on its current wording. Following the review, the workstream incorporated the interim peer review feedback and made refinements accordingly. As a result, the evaluation framework was strengthened and confirmed to be fit for purpose to support the MCA purpose.

List of Criteria

Reference	Criteria	Criteria Description	Route / Mode or Both
1	Passenger Demand and Improving Connectivity	To what extent does this option help meet projected passenger demand? Potentially by location/corridor?	Both
2	Frequency and Travel Time	To what extent does this option, including its use by both passenger and freight services, improve service frequency and reduce travel time within the wider transport network?	Both
3	Optimal Timetabling with Freight Destinations	To what extent does this option enable optimal timetabling to align with key freight destinations such as ports, ferries, and logistics hubs?	Mode

		Please also consider: To what extent does this option help meet freight demand?	
4	Resilience of the rail network	To what extent does this option enhance the rail networks resilience? Please also consider: To what extent does this option support the strategic aim of segregating metro and freight services to improve reliability and resilience of the network?	Mode
5	Technical feasibility	How significantly do technical or practical constraints affect the feasibility of this option? Please also consider: To what extent is the water management infrastructure for this option feasible and cost-effective? To what extent do geotechnical challenges impact construction and ongoing maintenance for this option?	Both
6	Integration with the Existing Transport Infrastructure	To what extent does this option integrate with existing transport infrastructure? Please also consider: Minimizing inefficiencies and operational challenges?	Both
7	Economic Impact	To what extent does this option influence economic growth and productivity? Please also consider: Opportunities at national, regional, and local levels?	Both
8	Cost	To what extent does the long-term affordability of operating and maintaining this option?	Both
9	3rd party funding	To what extent is this option likely to create opportunity to realise third-party funding?	Both
10	Land Use and Acquisition	To what extent does this option require land acquisition? (cost, area, location)	Route
11	Community Impacts	To what extent does this option impact local communities, including severance effects, accessibility for properties, and access to parks and public spaces? Please also consider: Property Impacts - To what extent does this option impact properties, including effects on businesses, access changes, and parking loss?	Route
12	Consenting	To what extent does consenting complexity pose a risk to project timeframes and delivery? Please also consider: To what extent does this option impact heritage sites and culturally significant areas, considering the cost and feasibility of mitigation? To what extent does this option impact natural habitats, ecosystems, and biodiversity?	Route
13	Natural Hazard Exposure	To what extent is this option exposed to risks from natural hazards such as earthquakes, landslips, flooding, and other environmental factors?	Route
14	Noise Pollution	To what extent does this option generate excessive noise during operation to e.g. surrounding properties, and how effectively can this impact be mitigated?	Route
15	Climate Change (Adaptation)	To what extent is this option exposed to excessive long-term physical climate change risks over time?	Route
16	Alignment with Strategic Plans	To what extent does this option align with New Zealand's national, regional and local wide strategic transportation plans and policies?	Both
17	Urban Planning	To what extent does this option align with urban densification goals outlined in the Auckland Future Development Strategy and New Zealand's National Policy Statement on Urban Development?	Both
18	Impact on te ao Māori	To what extent does this option impact areas of significance to Māori, including Māori land, cultural heritage, and kaitiakitanga?	Both

Subject Matter Experts and Avondale to Southdown Project Briefing

Subject Matter Experts (SMEs)

To ensure the MCA was grounded in technical expertise and knowledge, a diverse group of SMEs was selected to undertake the evaluation. The group included a broad range of SMEs from across relevant disciplines within KiwiRail, as well as from Auckland Transport (AT). The inclusion of AT representatives was to ensure a balanced and credible assessment, particularly in scoring the public transport criteria where AT has the responsibility for operation of the public transport network. These criteria were:

- Passenger Demand and Improving Connectivity
- Frequency and Travel Time
- Integration with the Existing Network

By bringing in the Rail Operations & Service Lead Planner and the Manager PT Service Network Development from AT, both highly experienced in public transport service planning, KiwiRail ensured that the passenger transport elements of the MCA were assessed by individuals with the appropriate subject matter depth to ensure fair and unbiased scoring.

List of Subject Matter Experts

- Engineering Design Manager - KR
- Property Acquisitions and Sales Manager - KR
- Projects Access Interface Manager - KR
- Senior RMA Advisor - KR
- Group Manager Strategic Performance and Property - KR
- Investment Development Manager - KR
- Network Investment Manager - KR
- Sustainability Manager - KR
- Commercial Manager – Access Agreements - KR
- Rail Operations & Service Lead Planner - AT
- Manager Public Transport Service Network Development - AT

Avondale to Southdown Project Briefing Workshop

Prior to the evaluation process, the Project Team held a project briefing workshop on Friday, 28 March 2025, to ensure all participating SMEs had a consistent understanding of the project context and purpose. The session provided a comprehensive overview of the Rail Programme Business Case (PBC), with a focus on the strategic drivers and investment objectives underpinning the A-S rail corridor. SMEs were briefed on the existing state of the corridor, including its designation, constraints, and surrounding land use, as well as the future role the corridor is expected to play in support of New Zealand's transport and freights networks. This context was essential in enabling evaluators to assess the options through a shared strategic lens, grounded in the corridor's long-term objectives and its place within the broader regional network.

The workshop also included a focused refresher on the NZTA MCA process and guidance to ensure a consistent and aligned approach across all evaluators. While the NZTA recommended 7-point scoring scale was already familiar to most SMEs, the session reinforced how to apply the scale in the context of this project and clarified how to interpret it

across different types of criteria. The Project Team outlined expectations for providing clear, evidence-based rationale to support each score, helping ensure that all evaluations were transparent, defensible, and repeatable. To support this, SMEs were shown a sample of their individual scorecards, illustrating how to complete the scoring sheet and what a strong rationale looked like in practice. This helped set a clear standard and supported consistency across the evaluation process.

As part of the workshop, SMEs were also briefed on the options they would be evaluating. This included a high-level overview of the alignment variations under consideration at both the western and eastern ends of the A-S rail corridor. For the western end, SMEs were taken through potential interfaces with the Western Line. For eastern end, the options focused on the approach to Southdown through Onehunga. In addition to the route alignment, the mode of transport was a key differentiator, with heavy rail being assessed against other possible modes to test whether it remained the most suitable solution for the corridor.

Following the session, each SME received a briefing pack containing information required to support their evaluation, including background context, option summaries, criteria definitions, and scoring guidance. For those SMEs unable to attend the group session, the workstream arranged individual one-on-one briefing sessions to ensure consistency of understanding across all participants.

Individual SME Scoring & Internal Moderation Workshop

Individual SME Scoring

Following the project briefing workshop, all SMEs were provided with a project briefing pack and their individual scorecards to complete the MCA evaluation. SMEs were given two weeks to score their assigned criteria and provide supporting rationale. The scoring process was conducted independently to ensure objectivity and prevent bias across the evaluation.

Given that the project remains in the early stages of planning, with limited quantitative data available, SMEs were instructed to draw upon their professional experience and judgment when assessing the options. This approach aligns with NZTA MCA guidance for high-level planning phases, where informed qualitative assessment is often necessary.

Where an SME referenced external sources to inform their evaluation, such as Auckland Council's Unitary Plan Zoning for criteria like Urban Development, these sources were clearly documented. All such references were compiled into a reference list (see Appendix 1), forming part of the supporting evidence base for the MCA. This ensured transparency in how conclusions were reached and provided traceability for future decision making.

Internal Moderation Workshop

Once all individual SME scorecards were submitted, the workstream consolidated the results to create the initial MCA score matrix, which formed the basis for the moderated evaluation. To ensure consistency, alignment, and a robust evidence base, an internal moderation workshop was held on 17 April 2025. This session brought together all participating SMEs from KiwiRail and Auckland Transport, the full Project Team as moderators, and the workstream lead as the facilitator. The workshop began with an introductory session that reiterated the purpose of the project and the intent of the MCA. Which was to confirm whether the current A-S designation is the most appropriate alignment for a crosstown corridor, and that heavy rail is to be the preferred mode for this corridor.

The moderation process involved a line-by-line review of each criterion. For every score, the original SME scorer was invited to give a high-level summary of their rationale, allowing others in the room to understand the basis for their assessment. All attendees were encouraged to constructively challenge or support the score in an open discussion, enabling a healthy exchange of perspectives. A final, moderated score was agreed upon collectively by the group, representing a consensus view informed by technical expertise and shared judgement.

All changes made during the moderation process were captured in real time by the workstream support, with detailed records included in the workshop minutes (see Appendix 3) to ensure full transparency and traceability of the evaluation process.

Interim Review (2)

Following the internal moderation workshop, all consolidated materials were provided to the Peer Reviewer for a second review. This included the working draft of the internally aligned MCA table, the workshop minutes, and a full record of the moderated scoring changes.

The Peer Reviewer was asked to assess whether the scores and supporting rationales were robust, repeatable, and free of bias. He was also invited to provide any feedback, questions, or challenges regarding the rationale provided by the scorers, or changes made to the scores during the moderation process.

Where the Peer Reviewer queried or challenged the score or rationale, the team consulted directly with the relevant SMEs to clarify the rationale or resolve discrepancies. In instances where an SME disagreed with the Peer Reviewer's comments, the workstream provided a formal response outlining the justification for retaining the original score. Additionally, the internal moderation group was given a short feedback window to raise any final points or concerns.

Once this review and response process was completed, the Peer Reviewer's assessment confirmed that the MCA scoring and rationale were considered to be robust, free of bias and repeatable, providing confidence in the integrity of the evaluation.

External Moderation Workshop & Final Review

External Moderation Workshop

An external moderation workshop was held on 23 May 2025, bringing together key representatives from across the transport sector to validate and align the MCA outcomes. Attendees included the independent external Peer Reviewer, and subject matter and senior leadership representatives from KiwiRail, Auckland Transport, and the New Zealand Transport Agency. The group included a mix of General Managers, disciplines leads and technical experts, ensuring both strategic and operational perspectives were present.

Similar to the internal moderation process, the workshop provided a forum for open, constructive discussion. Participants were invited to challenge or support scoring outcomes, based on their expertise and knowledge of the corridor and wider transport network. To facilitate effective engagement with a large and diverse group, KiwiRail engaged an independent facilitator, ensuring the session remained focused, impartial, and well-paced.

The primary objective of the session was to reach an externally aligned view of the preferred route and mode for the A-S rail corridor. The workstream support team captured all moderation changes to scoring in real time, and a parking lot was created to log any outstanding questions or matters that required clarification (see appendix 4). These items were taken back for further review and, where appropriate, resolved with the relevant SMEs after the workshop.

By the end of the session, there was strong agreement among participants that:

- The existing Avondale to Southdown designation is the preferred corridor for both the western and eastern connections, based on its performance across the full set of criteria.
- Heavy rail is the most appropriate mode to serve the corridor, providing the greatest long-term value and alignment with strategic objectives.

This outcome reaffirmed the MCA's core purpose: validating the A-S designation and mode through a multi-agency, evidence-based manner, enabling the next stages of corridor planning to proceed with confidence.

Although not proceeding with these options, the group also reached a consensus that two options were no longer viable and are likely to be fatally flawed[4]:

[4] A fatal flaw is a condition or circumstance that means the option will not be achieved or that a risk cannot be adequately mitigated, or it would be too detrimental to other outcomes to do so. Fatal flaw analysis involves a high bar. Options that are highly difficult but not fatally flawed are kept in the mix and be scored appropriately.

1. Eastern Route Option 3 (Mangere Inlet / EWL) was potentially fatally flawed due to significant consenting and environmental challenges. NZTA representatives highlighted that this route overlaps the area considered for the original East West Link project, which faced major consenting difficulties, indicating similar risks for this option.

2. Western Route Option 5 (Mount Albert Connection) was identified as potentially fatally flawed. The option raised significant geometric and operational concerns due to the acute angle required to join the NAL. A direct west-facing connection would be extremely difficult, if not infeasible, given the alignment constraints. As a result, any feasible junction would likely be east facing only, requiring a turnback for westbound access. This is a critical limitation to the corridor's purpose, as a west-facing connection is essential to support the investment objective of enabling direct freight movements away from the constrained inner network.

List of Attendees

- General Manager, Metro Investment Strategy – Strategic Metro Investments (KR)
- Investment Development Advisor - Strategic Metro Investments (KR)
- Investment Development Manager - Strategic Metro Investments (KR)
- Investment Planning Manager - Strategic Metro Investments (KR)
- Network Planning Manager - Strategic Metro Investments (KR)
- Engineering Design Manager – Engineering Design (KR)
- Peer Reviewer – Director (Ascari Partners)
- Facilitator - (ATMC)
- Rail Operations & Service Lead Planner – (AT)
- Manager PT Service Network Development – (AT)
- Rail Programme Development Lead (AT)
- Principal Transport Planner – Investment Development (AT)
- Principal Transport Planner – Planning & Strategy (AT)
- Project Development Lead (AT)
- Principal Investment Advisor – Local Government Partnerships (NZTA)
- Regional Manager – System Design (NZTA)
- Director - Rapid Transit System Design (NZTA)

Parking Lot Actions

Following the external moderation workshop, the Project Team took ownership of all parking lot actions, which captured outstanding questions, requested clarifications, and suggestions raised during the session. The workstream engaged with relevant SMEs to resolve these items, ensuring all responses were grounded in technical expertise and evidence.

As part of this follow-up process, two key changes were made to the MCA evaluation:

1. Refinement of the "Property Impacts" criterion:
   This was redefined as "Community Impacts" to better reflect the broader social considerations associated with

the corridor. The updated criterion was rescored, and a revised rationale was provided to align with the updated intent.

2. Addition of a “Capital Cost (Indicative Range)” criterion:
   Whilst exact figures were not available at this planning stage, the Project Team developed a qualitative cost evaluation using indicative cost ranges (see Figure 6). These ranges reflect general expectations for the relativity of costs across modes. Heavy Rail and Light Rail were evaluated as having the highest cost, Bus Rapid Transit (BRT) would still be a high cost but lower than that of the rail modes, and standard bus was evaluated to have the lowest cost range. This allowed cost to be considered within the evaluation framework, as per NZTA guidance, without needing detailed cost estimates.

Once all parking lot actions were addressed and incorporated, the updated MCA was shared with all workshop participants, and a three working day feedback window was provided. This allowed stakeholders to raise any final questions or concerns on the changes. No further substantive feedback was received, aside from a few moderators confirming they were satisfied with the final outcomes.

Final Peer Review (3)

Upon completion of all parking lot actions, KiwiRail submitted the full MCA evaluation package for a final peer review. It’s important to note that the Peer Reviewer was present during the external moderation workshop, observing the moderation process, which provided them firsthand insight into the discussions and decisions. For the final review, the complete suite of documentation was provided, including:

- The finalised MCA table with moderated and updated scoring
- Workshop minutes capturing all changes made during moderation.
- The full set of parking lot actions and formal responses
- All supporting evidence used by SMEs.
- A reference list of external sources that informed SME scoring.

Following their review, the Peer Reviewer confirmed that the final MCA and its supporting documentation were robust, defensible, neutral, and that the process was aligned with MCA best practice. This external validation provides assurance that the final outcomes of the assessment are reliable and can be confidently used to support future decision-making on the A-S rail corridor.

Final MCA Analysis

7-Point Scoring System	Score	
Large Positive		**+3**
Moderate Positive		**+2**
Slight Positive		**+1**
Neutral		**0**
Slight Negative		**-1**
Moderate Negative		**-2**
Large Negative		**-3**
Not Scored		

Eastern End Connections

Route (Eastern End Connections)			
Criteria	**Option 1: Existing Avondale to Southdown Designation**	**Option 2: SH20 Route via Lagoon**	**Option 3: Mangere Inlet (EWL)**
Passenger Demand and Improving Connectivity			
Frequency and Travel Time			
Integration with Existing transport Infrastructure			
Technical feasibility			
Economic Impact			
Cost			
3rd party funding			
Land Use and Acquisition			
Community Impacts			
Consenting			
Natural Hazard Exposure			
Noise Pollution			
Climate Change (Adaptation)			
Alignment with Strategic Plans			
Urban Planning			
Impact on te ao Māori			

Western End Connections

Route (Western End Connections)			
Criteria	**Option 4: Existing Avondale to Southdown Designation**	**Option 5: Connection at Mount Albert**	**Option 6: Connection at New Lynn**
Passenger Demand and Improving Connectivity			
Frequency and Travel Time			

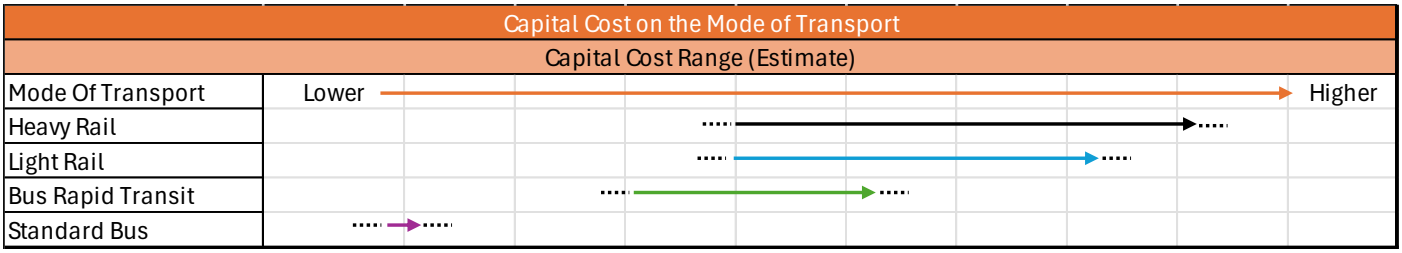
Integration with Existing transport Infrastructure			
Technical feasibility			
Economic Impact			
Cost			
3rd party funding			
Land Use and Acquisition			
Community Impacts			
Consenting			
Natural Hazard Exposure			
Noise Pollution			
Climate Change (Adaptation)			
Alignment with Strategic Plans			
Urban Planning			
Impact on te ao Māori			

Mode of Transport

Mode of Transport				
Criteria	**Option 7: Heavy Rail**	**Option 8: Light Rail**	**Option 9: Bus Rapid Transit**	**Option 10: Standard Bus**
Passenger Demand and Improving Connectivity				
Frequency and Travel Time				
Integration with Existing transport Infrastructure				
Optimal Timetabling with Freight Destinations				
Resilience of the Rail Network				
Technical feasibility				
Economic Impact				
Cost				
3rd party funding				
Alignment with Strategic Plans				
Urban Planning				
Impact on te ao Māori				

Capital Cost by Mode

Figure 6: Mode Capital Cost – Qualitative Indicative Range



Capital costs have not been estimated for the mode options under consideration. Professional judgment, and previous experience with rapid transit projects, has informed an evaluation of relative costs. In line with the NZTA MCA guidance that capital costs should not be scored, the relative cost ranges between modes are presented with commentary about the drivers of cost differences.

The capital costs will vary, in some cases substantially, due to the different infrastructure and operational requirements. Heavy rail and light rail would both incur the highest capital costs, driven by the need for dedicated tracks, greater earthworks, signalling, platform and station infrastructure. Light rail was assumed to terminate at Avondale and Onehunga which marginally decreases the top of the expected cost range compared with heavy rail. Bus Rapid Transit still would have a high capital cost, due to it requiring a dedicated corridor and stations, but it would likely have a cost below that of either rail mode due to its reduced complexity. Providing for increased standard bus services has a much lower capital cost than the rapid transit options as the services utilise existing road networks and require minimal infrastructure investment.

The discussion of capital costs does not account for differences in the outcomes delivered by each mode. Heavy rail consistently outperformed the other modes across almost all criteria. Increasing standard bus services, while costing the least by a wide margin, was the lowest scoring option on all but one criterion. Light rail and Bus Rapid Transit did not score so well against heavy rail to warrant prioritising a slightly lower capital cost. Importantly, freight can only be accommodated by heavy rail, as it is the only mode capable of handling the weight, volume, and logistical demands of freight movement efficiently and safely. The ability to remove rail freight from the inner rail network is central to unlocking benefits at a national scale.

Options Final Score

Eastern End Connections

- Option 1: Existing Avondale to Southdown Designation – Scored 9
- Option 2: SH20 Route via Lagoon – Scored -10
- Option 3: Mangere Inlet (EWL) – Scored -25

Western End Connections

- Option 4: Existing Avondale to Southdown Designation – Scored 5
- Option 5: Connection at Mount Albert – Scored -14
- Option 6: Connection at New Lynn – Scored -10

Mode of Transport

- Option 7: Heavy Rail – Scored 21
- Option 8: Light Rail – Scored -1
- Option 9: Bus Rapid Transit – Scored -1
- Option 10: Standard Bus – Scored -3

Peer Reviewer Conclusions

KiwiRail asked the independent external Peer Reviewer to review the scores and scoring rationales to ensure they were robust, repeatable and free of bias.

The Peer Reviewer's response in their report was:

"Overall, the MCA appears to be broadly in line with others I have reviewed, and this should provide comfort that the scoring / rationale meets the requirement of being robust, repeatable and free of bias."

KiwiRail asked the Peer Reviewer to confirm the robustness, defensibility and neutrality of the moderation process.

The Peer Reviewer's response in their report was:

"My view on the robustness, defensibility and neutrality of the moderation process:

- The workshop followed best practice procedures.
- It was moderated by a highly experienced facilitator with oversight by others.
- Moderation was actively undertaken via the workshop and scores adjusted accordingly (e.g. relativity between options and comparing to DM =0).
- Trade-offs were actively discussed.
- There is a risk of at the least a perception of a bias towards heavy rail given this is a KiwiRail led process. However, the fact is that this process is responding to the pending lapse of a heavy rail designation which has been in place for many years, and which has been actively integrated into the future rail network. And from my perspective, the assessment demonstrates that heavy rail has been treated in a neutral way.

In my view, this was a well-run, robust and transparent moderation process which adheres to the guidelines provided by NZTA. In terms of neutrality, as noted already, there is a risk of a perception of a bias towards heavy rail given this is a KiwiRail led process. However, from my perspective, the mode options have been treated in a neutral way throughout the assessment."

The Peer Reviewer's overall conclusion was:

"Having reviewed the material provided and attended the Moderation Workshop, in my view this process has correctly followed the relevant guidelines and meets the requirements of a robust defensible and neutral process. In my view the assessment provides confirmation that the designated corridor is the right route, and rail is the right mode for the Avondale - Southdown corridor."

Appendices

Appendix 1 - Reference List

1) Early Assessment Sifting Tool: user guidance

2) Multi-criteria analysis: user guidance – February 2023

Appendix 2 - List of SME Sources

Avondale to Southdown Workstream 2 – Fatal Flaw Analysis / Modified MCA Reference List

- Pre-Concept MVP Design – Avondale to Southdown Internal Advisory
- Strategic Optioneering – Exploratory Design
- Resource Management Act 1991
- Future Development Strategy: Overall evidence report
- Auckland Large Scale Project's – Proactive release
- Statutory Regional Plan for Auckland, from Ministry of Works (1946)
- Auckland Rapid Transit Pathway Plan
- Government Policy Statement on Land Transport 2024
- Regional Land Transport Plan 2024
- Rail Network Investment Programme 2024
- KiwiRail GIS iMaps
- KiwiRail GIS Property View
- Google Maps / Google Earth
- KiwiRail NAL / Western Line Design
- Auckland Unitary Plan Zoning
- Auckland Future Development Strategy
- New Zealand's National Policy Statement on Urban Development
- Auckland Council GIS Flood Plane Layer
- Auckland Council GIS Coastal Inundation Layer
- NZTA East West Report: Technical Report 15 Coastal Processes Assess Part 1 of 2 Report
- Auckland Transport Level Crossing Programme
- Auckland Transport Bus & Timetable Planning
- Simplified Hedonic Pricing Method - Published PWC (NPS-UD2020)

Appendix 3 - Moderation Workshop (1)

Meeting Minutes

Intro	Safety Moment Britomart has a large passenger base – with the recent weather events the surrounding areas have become very slippery. The marshals have been doing an amazing job keeping the flow of people safe.
Criteria Reference	Rationale for changes during the workshop
5	Technical Feasibility: • Option 4 – Score has changed from 1 to 3. (This is due to different assumptions of the route). Connection at Avondale was misinterpreted. • Option 5 – Score has changed from 1 to -3. (This is due to different assumptions of the route). Connection at Mount Albert was misinterpreted. • Option 7, 8, 9 – Score has changed from negative numbers to positive. (this is based on the discussion regarding looking at the mode in isolation to the corridor – removing the assumption of other infrastructure requirements outside of the corridor).
7	Economic Impact: • No changes were made.

1	Passenger Demand and Connectivity: • Option 2 – Score has changed from 2 to 1. (This is based on the discussion around sufficient catchment of passengers next to SH20 and within the industrial area of Onehunga) • Option 5 – Score has changed from (2 or 1) to 2. (This is due to AT scorers having a difference in scoring. The scoring was moderated up to 2 due to provide a shorter route to connect to the city and allows to link the WX busway.) • Option 6 – Score has changed from (2 or 3) to 2. (This is due to AT scorers having a difference in scoring. The scoring was moderated down to 2 due to a longer route to connect to the city. Was a close call due to New Lynn having a higher patronage than option 4 or 5).
2	Frequency and Travel Time: • Option 1 – Score has changed from (2 or 1) to 1. (This is due to AT scorers having a difference in scoring. Moderated down due to location of Avondale station and current travel time on the western line). • Option 5 – Score has changed from (2 or 1) to 1. (This is due to AT scorers having a difference in scoring. Moderated down due to Mount Albert being the longest route between West and South Auckland for freight and passenger).
6	Integration with Existing Transport Infrastructure: • Option 3 – Score has changed from (-1 or o) to -1. (This is due to AT scorers having a difference in scoring. Moderated down due to requiring more parallel bus services to cover the long stretch). • Option 6 – Score has changed from (0 or 1) to 1. (This is due to AT scorers having a difference in scoring. Moderated up as although hard to physically link this service – there is a well-integrated interchange facility at the New Lynn station).
1, 2 & 6	Mode of Transport on all three criteria: • Option 8: Score has changed from (2 or -2) to -2. (This is due to AT scorers having a difference in scoring. Moderated down due to an assumption around tram trains & forcing interchange to access all connecting modes). • Option 9: Score has changed from (-3 or -1) to -2. (This is due to AT scorers having a difference in scoring. Moderated to -2 due to unnecessarily complicated integration). • Option 10: Score has changed from (-3 or -2) to -2. (This is due to AT scorers having a difference in scoring. Moderated to -2 due to competitive travel times).
3	Optimal Timetabling with Freight Destinations: • Option 9: Score has changed from -2 to -3. (This is due to all other modes (other than rail) only marginally improving freight – to keep consistency this has been scored a -3).
4	Resilience of the rail network: • Option 8: Score has changed from 1 to 0. (This has been moderated down around the discussion of the option not enhancing the rail network). • Option 9: Score has changed from -2 to -1. (This has been moderated up around the discussion of the option not enhancing the rail network but slightly helping segregating passenger / freight). • Option 10: Score has changed from -3 to -1. (This has been moderated up around the discussion of the option not enhancing the rail network but slightly helping segregating passenger / freight).
8	Cost: • Option 3: Score has changed from 2 to -2. (This has been moderated down as the scorer made a mistake and was meant to score this a -2). • Option 5: Score has changed from 0 to -1. (This has been moderated down due to higher maintenance costs associated at grade separation at Mount Albert). • Option 7: Score has changed from 2 to -1. (This has been moderated down due all modes having a negative number due to maintenance and operational costs). • Option 9: Score has changed from (-2 or 2) to -2. (This has been moderated down due to the discussion regarding project owner on the different modes). • Option 10: Score has changed from (-2 or 1) to 0. (This has been moderated down due to the discussion regarding project owner on the different modes).

9	Third Party funding: • Option 2: Score has changed from 0 to 1. (This has been moderated up due to the discussion around that there is still minimal land to be developed). • Option 3: Score has changed from -3 to 0. (This has been moderated up due to the discussion around that the route below Onehunga isn't necessarily making things worse for 3rd party funding). • Option 5: Score has changed from -3 to 0. (This has been moderated up due to the discussion around that this option isn't necessarily making things worse for 3rd party funding). • Option 6: Score has changed from -2 to 1. (This has been moderated up due to the discussion around that there is still minimal land to be developed).
12	Consenting: • No changes were made.
10	Land Use and Acquisition: • Option 2: Score has changed from -1 to -2. (This has been moderated down due to the discussion around commercial property purchases are expensive and we would require purchasing a decent amount). • Option 3: Score has changed from 0 to -3. (This has been moderated down due to the discussion around the amount property that would be required to be purchased compared to the existing designation. There was also a discussion around the assumption that the scorer made that it would be a net zero land grab with NZTA – but the room disagreed). • Option 4 & 5: Has been swapped around. (This is due to the connection being misinterpreted by the scorer).
11	Property Impacts: • Option 1: Score has changed from 0 to -1. (This has been moderated down due to the discussion around although we have the designation there will still be a disruption to surrounding properties and the roading network). • Option 2: Score has changed from -1 to -2. (This has been moderated down due to the discussion around that we will be disrupting commercial buildings and their access to parking). • Option 3: Score has changed from -2 to -3. (This has been moderated down due to the discussion around that we will be disrupting commercial buildings and their access to parking). • Option 4 & 5: Has been swapped around. (This is due to the connection being misinterpreted by the scorer). Option 6: Score has changed from -1 to -2. (This has been moderated down due to the discussion around that in New Lynn there are more properties that will be impacted).
13	Natural Hazard Exposure: • No changes were made
14	Noise Pollution: • Option 1: Score has changed to -2 (post workshop). (This has been moderated down due to the discussion around that operational noise could be mitigated with noise barriers/ construction noise would be conditioned by the consent but would still likely be a nuisance).
15	Climate Change Adaptation: • No changes were made
16	Alignment with Strategic Plans: • Option 3: Score has changed to -2 (post workshop). (This has been moderated down due to the discussion around that this option seems to be significantly negative as it does not align with many strategic criteria).
17	Urban Planning: • No changes were made
18	Impact on te ao Māori: • Not scored at this time

Appendix 4 - Moderation Workshop (2)

Meeting Minutes

Intro	Safety Moment As office workers one of our largest safety risks is our commute to and from the office. As we approach the wintertime, the roads get slippery, and it becomes harder to see the oncoming cars. Just a friendly reminder to be more aware and take extra precaution while driving.
Criteria Reference	Rationale for changes during the workshop
1,2 & 6	Passenger Demand and Improving Connectivity, Frequency and Travel Time, Integration with Existing Transport Infrastructure: • Mode Option 10 (Standard Bus) – Score has changed from -2 to -3. Bus Rapid Transit should be scored higher than standard bus due to the dedicated corridor. • Western Option 4 (Existing A-S) – Score has changed from -1 to 0. The score was implying that it was worse than current – which is incorrect.
5	Technical feasibility: • Western Option 4 (Existing A-S) – Score has changed from 3 to 0. As all three options will require grade separation. If compared to the do nothing this will be like a 0.
8	Cost: • Eastern Option 1 (Existing A-S) – Score has changed from 2 to -1. This is due to that there is still maintenance and operation costs for this option against the do nothing.
16	Alignment with Strategic Plans: • Mode Option 8 (Light Rail) – Score has changed from -1 to 0. Light rail is consistent with the longer-term strategic plans. • Mode Option 10 (Standard Bus) – Score has changed from 2 to 0. Bus rapid transit is more consistent with strategic plans than standard bus. Requiring a balancing act across the options.
17	Urban Planning: • Mode Option 7 (Heavy Rail) – Score has changed from 2 to 3. Key distinction is that heavy rail would do this better. • Mode Option 8 (Light Rail) – Score has changed from 1 to 2. Balancing act as this option should score higher versus standard bus. Overseas example of densification. • Mode Option 9 (Bus Rapid Transit) – Changed from 2 to 1. Balancing act as this option should score higher versus standard bus. Overseas example of densification.
18	Impact on te ao maori • All options have been changed from 0 to not scored.
12	Consenting: • Designation and resource consent differentiation in rationales • Western Option 5 (Mount Albert) – Score has changed from -2 to -3. This presents significant consenting challenges from a consenting perspective. No designation in a dense suburb. • Western Option 6 (New Lynn) – Score has changed from -2 to -3. This presents significant consenting challenges from a consenting perspective. No designation in a dense suburb.
11	Property Impacts: • Western Option 5 (Mount Albert) – Score has changed from -2 to -3. This will require significant land take in an already built-up area. This will have a major impact on properties as there isn't a designation already in place. • Western Option 6 (New Lynn) – Score has changed from -2 to -3. This will require significant land take in an already built-up area. This will have a major impact on properties as there isn't a designation already in place.
14	Noise Pollution: • Eastern Option 3 (East West Route) – Score has changed from 2 to 0. This has been lowered to a 0 due to creating similar noise pollution as the do nothing. Route is next to the water with very minimal noise impact.

	• Western Option 4 (Existing A-S) – Score has been changed from 0 to -1. As the surrounding properties are still impacted by construction and operation. Although the designation is already in place.
10	Land Use and Acquisition: • Western Option 5 (Mount Albert) – Scored has changed from -2 to 3. This will require significant land take in an already built-up area. • Western Option 6 (New Lynn) – Scored has changed from -2 to 3. This will require significant land take in an already built-up area.

Appendix 5 - Parking Lot actions

Action	Response
Technical Feasibility: Should all options be scored a 0? As they are all technically feasibly? (Mode Only)	The SME sent through additional evidence to defend their existing scoring. This has been documented below under the heading "Additional SME Evidence."
Cost: Remove the word around "project owner" in the description. Operational & Maintenance cost needs to be re-looked at for Mode. As the rationale doesn't match up with what the criteria is asking.	The wording around project owner has been removed. The SME has changed the rationale for their scoring on mode.
Urban Planning: What are the principles in the rationale referring too? Could you please support with further evidence.	The SME has updated their rationale and included reference to the principles. Additional evidence has been documented below under the heading "Additional SME Evidence."
3rd Party Funding: Should light rail be scored the same as heavy rail?	Previously this was raised by the Peer Reviewer during their interim review. The SME has disagreed with this, and additional evidence has been documented below under the heading "Additional SME Evidence."
Consenting: Could the rationale for designation and consenting be split? Should the Option 1 Existing A-S designation be scored a 0 or -1 from a 2?	The SME has split their rationale comments. The SME and project team have agreed to lower this scoring to a 0. Rationale has been updated to reflect this.
Property Impacts: Could we change the criterion description to show effects on community instead. Scoring and rationale needs to be updated.	The project team created this new criterion description and went through a round of Project Team review. The SME has scored and provided rationale on this. This has been through one round of SMI review.
Capital Cost: Capex costs need to be included for the mode options.	As discussed during the workshop this will be evaluated outside the MCA in a relative range. The Project Team and the SMEs have assessed the options and written up commentary, which is on a separate tab in the MCA master sheet. This has gone through a round of review within the Project Team.
Impact on Te Ao Māori: Remove the zeros and keep the scoring blank.	This has now been updated.
MCA Headings: Change Northern and Southern to Eastern and Western. Remove the text Tonkin and Taylor from the route options	This has now been updated.

Route: Why isn't the route a full tunnel?	As discussed during the workshop. This will be separate to the MCA table. The project team has had a discussion around this. It will be included as part of this project's FAQ. The project lead and workstream team have begun drafting a write up on this.
Route: Have we considered an alternative to A-S? Is there an alternative at Newmarket that solves the freight problem?	As discussed during the workshop. This will be separate to the MCA table. The project team has had a discussion around this. It will be included as part of this project's FAQ. The project lead and workstream team have begun drafting a write up on this.

Appendix 6 - Additional SME Evidence

Are there any criteria/scores that would benefit from further evidence in the MCA?

Technical Feasibility

Question: Mode Options – Should all options be scored a 0? As they are all technically feasible?

When assessing the technical feasibility criteria, the SME used sub criteria to evaluate each of the options as the criteria was quite broad. The sub criteria were as follows:

1) **Safety to construct/ implement and maintain.**

Standard bus scored highest as uses existing road. Other modes not as high due to need for a dedicated corridor.

2) **Geotechnical risk**

Standard bus - nil Geotech risk as road is existing. Other modes potential Geotech risk to provide dedicated corridor.

3) **Integration and compatibility with existing/future infrastructure and environment**

Standard bus came out highest mostly as it did not take up additional space from the road corridor which LR or BRT would do or a rail corridor and therefore would have better integration and therefore less impact on the existing infrastructure and environment.

4) **Technical and operational risks**

Std bus highest. Heavy rail has more tech risks but balanced out by a lower operational risk with the highest safety integrity levels. Light and BRT then evened out to the same as heavy rail as scoring range was not that granular.

This was the reasoning based on a comparison between modes and using the sub criteria above.

Urban Planning

Below are the principles the SME was referring too:

Principle 1: Reduce greenhouse gas emissions

A compact urban form is a critical requirement for low carbon and climate resilient urban development as it largely determines the viability and practicality of different modes of transport. Both commuter and household vehicle trips generate significant greenhouse gas emissions. Compact urban growth (greater density, mixed-use) reduces car dependency and vehicle kilometers travelled (VKT) when the car is in use, and enables people to live more locally and choose sustainable methods of mobility like walking and cycling. Key to supporting this is by having employment and where people live in close proximity, and having services and facilities within easy reach. A reliable and frequent public transport network supports the other needs to travel across the region. Such a network cannot be achieved within a low-density urban form with limited mixed use.

Principle 2: Adapt to the impacts of climate change

As our climate changes, the frequency and severity of hazards will worsen. Hazards such as flooding, coastal inundation and sea-level rise, coastal erosion and instability, or other geohazards will impact communities, public health, private property, infrastructure, and ecosystems. In some locations, heat hazard risk will also increase over summer. Where and how we plan for growth and change and adapt to these hazards is increasingly important.

There are different approaches to adaptation to make communities more resilient to the effects of hazards. The FDS provides direction to support these adaptation approaches through how we grow and change.

Principle 3: Make efficient and equitable infrastructure investments

Infrastructure is expensive and takes significant time to plan and implement. Over the next 30 years, the council plans to invest around $284 billion on infrastructure, with over $118 billion of that planned to be spent on new assets or renewals of existing assets[6]. Infrastructure investment is a complex challenge and requires balancing many competing demands to ensure money is spent in a way that produces the most value , especially as there are limits in terms of council's ability to borrow.

The council, along with many other entities including central government and the private sector, provides infrastructure to support growth. The council is responsible for the planning and provision of regional transport, three water services, parks and community facilities, waste, arts, culture and urban regeneration. Ports (both sea and air) state highways, telecommunications, electricity, gas and petroleum suppliers, health and education providers all provide infrastructure for Aucklanders.

Infrastructure ownership is spread among different agencies with different priorities, which means coordinated management and delivery can be difficult. The council will continue to partner with central government, iwi and the private sector to realise outcomes for Auckland.

Principle 4: Protect and restore the natural environment

The ecological health of the natural environment and community's access to it, are critical to the success of urban spaces. Partnering with mana whenua and drawing from mātauranga Māori with collaborative community action will enable better outcomes.

Development can put pressure on the natural environment, particularly impacting the space and connectivity for water, soils, plants and animals to thrive. However, development also presents an opportunity to draw from mātauranga Māori and to protect and restore our ecological taonga as Tāmaki Makaurau grows and changes. This will require both the council and developers to prioritise outcomes that integrate the built and natural environment.

Principle 5: Enable sufficient capacity for growth in the right place and at the right time

The National Policy Statement on Urban Development 2020, and particularly the Medium Density Residential Standards (MDRS)[8], have changed the strategic planning landscape. This principle considers where and how growth, and the funding of supporting infrastructure, is prioritised to get the best outcomes and support the functioning of land and development markets. It also confirms that Tāmaki Makaurau has sufficient residential and business development capacity to meet needs over the long-term.

Urban Planning

Note. Higher density can only be successfully achieved if good public/mass transport options exist. In its PBC, KO note that: *The future (light) rail corridor is also likely to be a significant driver of future development potential over and above what the proposed MDRS provisions would seek to apply.*

1. Recent research by Newman, Kenworthy and Laube showing demonstrated a strong positive correlation between population density and transit use in various cities globally. "While empirical evidence shows a strong correlation between density and transit use, it is important to know whether causality exists and why

there might be a density threshold below which transit is ineffective. If a city's density is below this threshold, it could not hope to increase the share of transit trips significantly without first increasing its density."

2. In the case of Auckland, and more specifically PC78 as well as large scale programmes by TRC and KO respectively – density uplift of between 1:3 (average across Mt Roskill Precinct) and 1:8 in some localised neighbourhoods along the rail corridor through MHU and THAB zoning is currently enabled.

Note. Spatially, Auckland has been developing, largely in accordance with what was set out by city planners in the 1940's. The Avondale-Southdown Rail Corridor, including its tie-in with the NAL (north) are in accordance with city plans since 1946. (Figure 1)

1. The current rail designation in the north is the only at grade alignment option, which 1. Is designated, 2. Accommodated and planned around for in city plans.
2. Any deviation from this alignment will trigger fresh consenting, land acquisition and community consultation processes and approvals. Opinion is held that given recent infrastructure (utilities) investments under the Roskill LSP, that investment will have to be sunk to allow for any potential deviation from the current rail designation alignment.

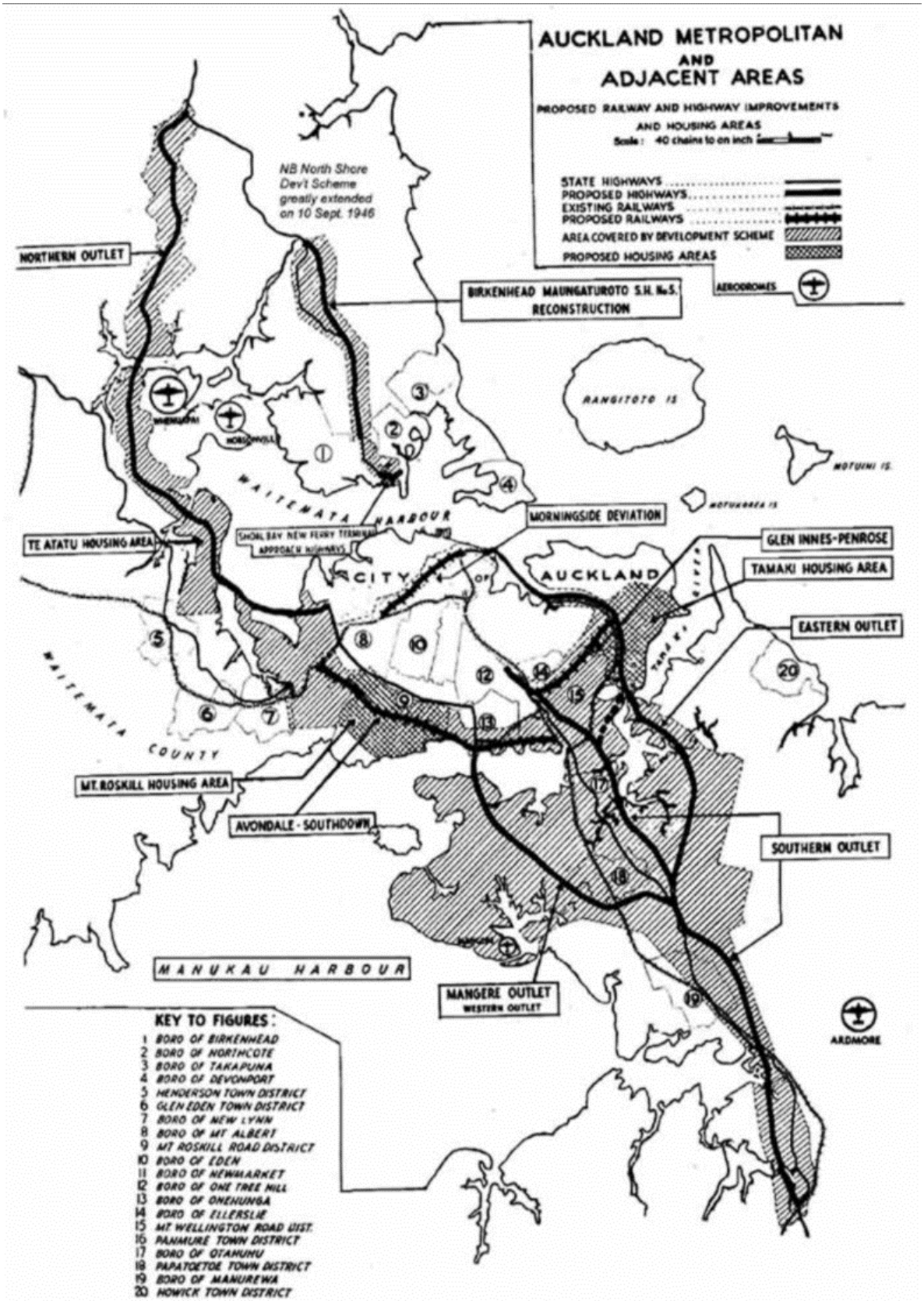


Figure 3: Statutory Regional Plan for Auckland, from MOW (1946).

Figure 1: Auckland - Statutory Regional Plan, 1946

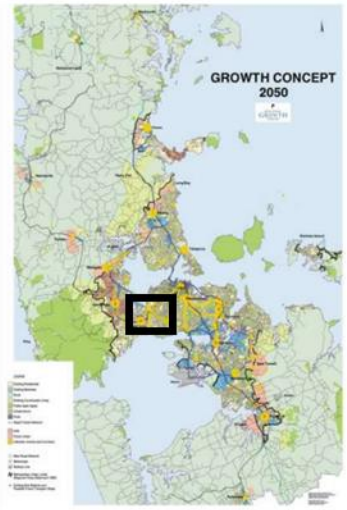
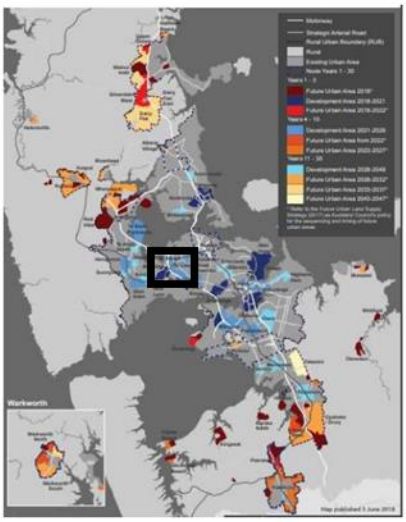
1999	2012	2018
The Auckland Regional Growth Strategy	2012 Auckland Plan Development Strategy	Auckland Plan 2050 Development Strategy
		
• an initiative of the Auckland Regional Growth Forum which brought together all councils in the Auckland Region, prior to amalgamation • 50-year growth strategy for the Auckland region • established the vision of a quality compact urban form • intensification in identified nodes and corridors • limited outward expansion (20 years' expansion identified).	• first spatial plan for all of Auckland under LGACA, part of the 2012 Auckland Plan • first 30-year high level development strategy • confirmed a quality compact approach for Auckland • 70 40 split intensification and urban expansion • high population growth assumption used.	• refresh of the 2012 Development Strategy • developed under LGACA and NPS-UDC to fulfill both sets of requirements • 30-year high level spatial plan • quality compact approach retained and refined including: nodes and development areas in existing urban together with managed expansion into future urban areas. • updated with new information and requirements • medium population growth assumption used.

Figure 2: Auckland FDS: Overall Evidence Report, November 2023

3.2.2 Principles for growth

The findings of the evaluation process provided for the identification of several principles for growth that informed the spatial land use pattern of the FDS. These are set out below.

Residential development capacity

- Housing types and location choices will be provided through a combination of intensification within walking distance from centres and rapid/frequent transit networks (six storeys plus) and committed future urban areas (live zoned), plus medium density across the urban environment.
- Natural and built heritage protection (including some special character areas) can be achieved while providing for substantial intensification within the central isthmus.
- Rely on additional future urban areas only where required to meet demand for land (and contributing to other outcomes sought).
- Avoid future urban areas that are subject to significant hazards (i.e. Takaanini, Oopaheke).
- Enable some growth within market attractive areas in proximity to the city centre and high amenity areas such as the eastern beaches.

Employment development capacity

- Focus growth within existing urban areas along rapid and frequent transit networks, centres, and future urban areas where required to meet demand for employment.
- Identify sufficient greenfield business land (at least 1,000 ha) to meet demand for Group 1 land extensive industrial activities.
- Provide for new centre / metropolitan centre zones within future urban areas.
- Increase jobs in sub-regions (nodes) and future urban areas, as well as local employment areas to locate jobs near housing to reduce vehicle kilometres travelled and increase active mode share.

Figure 3: Auckland FDS: Overall Evidence Report, November 2023

Online Links:

1. Future Development Strategy: Overall evidence report
2. Auckland LSPs - proactive release 06122022_Redacted.pdf
3.

Urban Planning SME Author Notes

1. [FDS]".... this means that spatial planning should seek to avoid, as far as possible, new greenfield development in locations that are not, or will not, be serviced by good quality public transport services. At the same time, planning for higher density development close to centres, key employment hubs, and good quality public transport is critical..."
2. FDS Principles attached.
3. Cost of transport is more important consideration. The expected impact of an increase in transport costs on the relationships between distance from the city centre and house prices, land values, density, building heights, and space consumption per household (dwelling size). As direct transport costs borne by residents (as opposed to the external costs) rise, locations further away become a more costly substitute for proximity to the centre. This shrinks the effective size of the city, or more accurately, the urban labour market, increasing the scarcity of land available for all urban uses.

Transport attributes	A residential property being located …	… is associated with a change in land value per sqm of:
Rail	within 250m of a train station	15%
	between 250m and 500m of a train station	12%
	between 500m and 1500m of a train station	4%
Bus	within 100m of a bus station	22%
	between 100m and 250m of a bus stop	20%
	between 250m and 500m of a bus stop	12%
Highway	within 100m of a state highway	-12%
	between 100m and 250m of a state highway	-11%
	between 250m and 500m of a state highway	-7%
All roads	further from the CBD by 10%, in minutes of driving time	-6%

Source: PwC analysis

Impacts of other land attributes on land value include:

- A 10% increase in employment density is associated with a 2% increase in land value per sqm
- Being in a high earthquake hazard area is associated with a 2% decrease in land value per sqm
- A 10% increase in the deprivation index is associated with a 22% decrease in land value per sqm
- A 10% increase in distance to the coast is associated with a 2% decrease in land value per sqm

Auckland – Cross section: RTN and the frequency effect

A study by Trubka and McIntosh (2019) show a similar finding across the Auckland rail network. The authors use a similar hedonic pricing approach to evaluate the influence of proximity to a station and rail frequency (over a three hour peak period) on land values. The results demonstrate a positive relationship between land values and proximity to Auckland rail stations, and this effect is strongest for stations with high service frequencies. For all properties within 400 metres of a rail station in Auckland, land values range from 6.2 percent to 24.9 percent higher. For stations with roughly a four-minute frequency (~30 services in the AM Peak), land values range from 6.4 percent higher for properties within 1,600m to 15.2 percent higher for properties within 400m.

Auckland – Time series: CRL announcement effect (Western rail line)

The impact of new transport infrastructure can be capitalised into urban land prices upon project announcement – and therefore have fast-emerging impacts on urban form. One demonstrated example of this is the CRL in Auckland. According to a 2019 study by PwC, the announcement of the CRL caused land values of properties proximate to existing and future stations to increase. This is illustrated in Figure 37, where land parcels within 10 minutes' walk from a station increased at a faster rate than those further away. In monetary terms, using a difference-in-difference approach, the estimated appreciation of land proximate to western line rail stations, after the announcement of the CRL, amounted to more than $3 billion in excess of secular trends. There are good reasons to expect that this will increase further as the project becomes operational. Grimes and Young (2013) find similar effects for rail upgrades in Auckland.

Third Party Funding

Light rail, end to end (as a shuttle concept) will not seamlessly integrate within the wider metro network, making it less attractive. Whilst we will get some densification, the market (especially residential will be taken up in places where buyers have options, which in turn will drive more demand). Heavy rail by definition offers full integration and in turn offers prospecting buyers (if we think residential again) access to a wider city market, which is less disruptive/hassle-free across the entire Metro network. Scoring reflects the differentiation between light rail and heavy rail, and it stands.

Appendix 7 - MCA Scoring & Rationale Summary

Route: Eastern End Options

- ***Option 1: Existing A-S Designation***
- ***Option 2: SH20 route via Lagoon***
- ***Option 3: Mangere Inlet (EWL)***

Option 1: Existing A-S Designation — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand & Connectivity	3	Enables stations at Mt Smart and central Onehunga, improving catchment and integration with existing bus corridors. Enhances walkability and access to destinations in Onehunga town centre.
Frequency & Travel Time	1	Supports increased service frequency on inner west and east lines. However, travel time may be impacted by reliance on existing freight infrastructure between Southdown and new Onehunga(s) stations.
Integration with Existing Infrastructure	1	Offers alternatives to Te Papapa and Onehunga stations, allowing removal of the existing Onehunga line.
Technical Feasibility	-1	Significant construction challenges including basalt excavation near residential areas, water-bearing faults, traffic disruptions, and stormwater management. Operational concerns include trench flooding, emergency access, and proximity impacts (noise/vibration). Assumes trenching through Onehunga with bunds and grade-separated crossings.
Economic Impact	3	Captures Royal Oak and Three Kings catchments, enhancing labour supply and economic uplift through densification and improved connectivity in Onehunga.
Cost	-1	Avoids major flood zones, reducing drainage costs. Shared use by freight and metro services lowers fixed costs. Infrastructure environment is the key cost differentiator.
Third Party Funding	3	High potential due to greenfield land parcels and zoning allowances under the Unitary Plan.
Land Use & Acquisition	0	Minimal additional land required; 95% already acquired under existing designation.
Community Impacts	-2	Construction will disrupt local movement, parking, and access. Long-standing designation mitigates some planning concerns, but civil works and reverse sensitivities remain impactful. Operational phase offers improved access to civic amenities. Community definition based on location only, not cultural or social dynamics.

Criterion	Score	Rationale
Consenting	0	Existing designation reduces consenting risk. Minor challenges (noise, dust, traffic) are manageable via district-level plans. Regional consents required but low risk of public notification.
Natural Hazard Exposure	-1	Route intersects flood-prone areas, particularly in Onehunga.
Noise Pollution	-2	Significant noise impacts expected. Legal rights under designation mitigate some risks. Operational noise can be managed with barriers; construction noise remains a concern.
Climate Change (Adaptation)	-1	Route passes through flood-sensitive areas, though less exposed than other options. Southdown area may face river and surface flooding risks.
Alignment with Strategic Plans	3	Strong alignment with RLTP and Auckland Rapid Transit Pathway objectives, especially in connecting key urban centres and employment hubs.
Urban Planning	3	Supports Integrated and Transit-Oriented Development (ToD), avoiding greenfield expansion and promoting density near transport hubs.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 2: SH20 Route via Lagoon — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand & Connectivity	1	Retains Onehunga station and enables a Mt Smart station. Limited improvement in Onehunga township connectivity.
Frequency & Travel Time	1	Supports additional services on inner west and east lines. Freight movement on steep grades may constrain metro capacity.
Integration with Existing Infrastructure	2	Retains existing Park & Ride at Onehunga and provides an alternative to Te Papapa, allowing removal of the existing Onehunga line.
Technical Feasibility	-3	Major construction challenges including deep excavation, tunnelling risks, basalt blasting near properties, stormwater management, and utility diversions. Operational risks include diesel fire loads in tunnels, ventilation requirements, and difficult maintenance access. Tunnel intervention and land take required.
Economic Impact	1	Potential station near Mt Smart offers some connectivity benefits. Limited impact on Onehunga township and minimal densification potential. No significant freight differentiation.
Cost	-1	Requires flood protection and maintenance. Route bounded by motorway necessitates bridges or underpasses for passenger access.

Criterion	Score	Rationale
Third Party Funding	1	Minimal developable land along Princes Street, constrained by SH20 and the lagoon.
Land Use & Acquisition	-2	Minimal additional land required, but interest along Princes Street must be acquired. Public land assumed otherwise.
Community Impacts	-2	New designation not included in city planning. Construction may spill into surrounding neighbourhoods and commercial areas. Operational phase offers public transport access but less attractive for general use. Some land acquisition required, including Māori Reserve and commercial land. Community definition based solely on location.
Consenting	-2	Requires a new designation, posing significant consenting risks. Proximity to highway may offer minor mitigation.
Natural Hazard Exposure	-2	Route intersects flood-prone and sensitive areas, especially near SH20, the lagoon, and industrial Onehunga.
Noise Pollution	-1	Significant noise effects expected. No existing designation to mitigate impacts. Fewer affected properties and industrial routing offer partial mitigation.
Climate Change (Adaptation)	-2	Route passes through flood-sensitive areas, including coastal and industrial zones. Southdown also prone to flooding.
Alignment with Strategic Plans	1	Minor alignment with RLTP and Auckland Rapid Transit Pathway due to Western Onehunga station. Neutral alignment with GPS and RNIP.
Urban Planning	-2	Does not support urban development outcomes. Fails to connect community with transport and misaligns with Future Development Strategy principles.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 3: Mangere Inlet (EWL) — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand & Connectivity	0	No viable locations for Mt Smart or new Onehunga stations. Provides no connection to Onehunga for services from GI or Avondale.
Frequency & Travel Time	0	Offers redundancy for freight by separating yard and through movements. No benefit for metro services to Onehunga.
Integration with Existing Infrastructure	-1	Requires parallel bus services due to lack of stations. Some linkages to eastern and southern lines may benefit both modes.
Technical Feasibility	-3	High construction risk due to marine reclamation, sediment impacts, contaminated ground, and soft strata. Operational risks include storm surge,

Criterion	Score	Rationale
		settlement, and marine durability. Emergency access and maintenance near water are challenging.
Economic Impact	0	No labour supply or agglomeration benefits. Poor accessibility at Southdown and no densification potential at Hillsborough.
Cost	-2	Coastal location requires sea-level and flood protection. Limited residential connectivity reduces cost-sharing potential between freight and metro services.
Third Party Funding	0	Primarily industrial zoning limits development and funding opportunities.
Land Use & Acquisition	-3	Multiple land parcels need to be acquired, including from NZTA and other agencies.
Community Impacts	-2	New designation not in city plans. Construction may affect commercial areas south of Onehunga. Operational access is less attractive. Land acquisition challenges include overlapping boundaries and potential compulsory acquisition issues. Community definition based solely on location.
Consenting	-3	Requires a new designation in a highly sensitive natural and cultural environment. History of problematic consenting.
Natural Hazard Exposure	-3	High exposure to coastal inundation and flood-prone areas, especially along SH20 and the Mangere Inlet.
Noise Pollution	0	Few sensitive receivers, but potential impacts on natural habitats.
Climate Change (Adaptation)	-3	Route passes through flood-prone and climate-sensitive areas. Coastal location increases exposure to sea-level rise and storm surge.
Alignment with Strategic Plans	-2	Inconsistent with GPS due to conflict with East-West Link. No alignment with RLTP or Auckland Rapid Transit Pathway due to lack of station improvements. Neutral for RNIP.
Urban Planning	-3	Does not support urban development outcomes. Fails to connect community with transport and misaligns with Future Development Strategy principles.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Route: Western End Options

- **Option 4: Existing A-S Designation**
- **Option 5: SH20 route via Lagoon**
- **Option 6: Mangere Inlet (EWL)**

Option 4: Connection at Avondale / Existing A-S Designation — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand & Connectivity	1	Provides an acceptable route to the city, though longer. Retains potential to replace the 67-bus route.
Frequency & Travel Time	1	Offers a reasonable route to the city. Could support replacement of existing bus services.
Integration with Existing Infrastructure	0	Avondale has poor bus-train integration due to distance. While no new designation is needed, this option is tied to the level crossing removal scheme. Poor drop-off and cycle connectivity limits multimodal integration.
Technical Feasibility	0	May remain within existing designation but requires staging for grade separation at New North Rd. Flat bifurcation introduces collision risks. Platform changes needed for passengers transferring to CBD.
Economic Impact	2	Good potential for densification and connection to future North-West rapid transit. Opportunity to activate Rosebank industrial area. Interim station between Avondale and Mt Roskill could support growth.
Cost	-1	At-grade route with standard operating and maintenance costs.
Third Party Funding	3	Presence of greenfield land parcels enhances funding potential.
Land Use & Acquisition	-1	Limited number of landowners to acquire from. No roading assumptions were made.
Community Impacts	-1	Construction will split the local community and impact traffic and parking. Designation has existed since the 1940s, and planning has accounted for it. Operational improvements may enhance access and connectivity. Civil infrastructure upgrades (e.g., New North Rd bridge) will affect a broader community. Community definition based solely on location.
Consenting	0	Existing designation reduces consenting risk. Some challenges expected but generally resolvable and low risk.
Natural Hazard Exposure	-1	Route intersects flood-prone areas.

Criterion	Score	Rationale
Noise Pollution	-1	Significant noise effects expected, but existing designation provides legal mitigation.
Climate Change (Adaptation)	-2	Route is more exposed to flooding than Options 5 and 6.
Alignment with Strategic Plans	2	Consistent with Auckland Rapid Transit Pathway. Moderately aligned with RLTP. Neutral alignment with RNIP and GPS.
Urban Planning	3	Strong alignment with historic and current city planning. The Avondale-Southdown corridor has been part of Auckland's spatial plans since the 1940s.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 5: Connection at Mount Albert — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand & Connectivity	2	Shortest route to the city, with potential connections to the Western Line and WX busway. However, it offers lower capacity gains due to most high-demand stations (e.g., New Lynn) being west of the junction.
Frequency & Travel Time	1	Shortest route to the city and good busway connections. However, it creates the longest route between west and south Auckland for both freight and passenger services.
Integration with Existing Infrastructure	1	Offers independence from Avondale level crossing solutions. Requires a new route (likely cut-and-cover).
Technical Feasibility	-3	Diverges from existing designation near Richardson Rd. Complex grade separation needed at Richardson and Owairaka Rds. Basalt flows from Mt Albert pose construction challenges. Acute angle with NAL requires significant infrastructure to enable eastbound connections. Platform changes required for westbound passengers.
Economic Impact	1	Good densification potential and labour supply benefits from Carrington Road development. No major employment centres nearby to support agglomeration. Interim station between Mt Albert and Mt Roskill could support growth.
Cost	-2	Tunnel operations introduce complexity and additional systems to maintain.
Third Party Funding	0	No third-party funding opportunities identified.
Land Use & Acquisition	-3	Requires acquisition of high-density residential properties. This will require significant land take.

Criterion	Score	Rationale
Community Impacts	-3	New designation not included in city planning. Construction will significantly impact the community and existing infrastructure (utilities, roads). Retrofitting will undermine recent investments. Operational noise impact is lower due to likely tunnelling. Community definition based solely on location.
Consenting	-3	Requires a new designation, posing significant consenting risks. Affects many properties and interests, though natural environment impacts are limited.
Natural Hazard Exposure	0	Some flood-prone areas, but less exposure than Option 4.
Noise Pollution	-3	Route passes through residential areas, affecting many properties.
Climate Change (Adaptation)	-1	Some exposure to flood-prone areas.
Alignment with Strategic Plans	2	Moderate alignment with RLTP. Consistent with Auckland Rapid Transit Pathway. Neutral alignment with RNIP and GPS.
Urban Planning	-3	Not aligned with current or historic planning. Any deviation from this alignment would trigger new consenting, land acquisition, and community consultation processes. Recent infrastructure investments (e.g., under Roskill LSP) would be compromised.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 6: Connection at New Lynn — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand & Connectivity	2	Longer route to the city but fastest west–south connection. Potential station in New Windsor. Highest potential to meet latent demand and shift private vehicle users. New Lynn has higher patronage than Avondale and Mt Albert combined, offering strong capacity and connectivity benefits.
Frequency & Travel Time	3	Maximises cross-town benefits and could replace parts of the 67 and 68 bus routes. Offers significantly faster travel between West and South Auckland for both passengers and freight, potentially shifting road freight to rail.
Integration with Existing Infrastructure	1	Challenging physical connection at New Lynn, but well-integrated with existing bus hub, cycleways, and road access. Reduces congestion on key arterial roads.
Technical Feasibility	-3	Significant deviation from existing designation. Requires grade separation at multiple arterial roads and bridging over a stream. Topography demands trenching or tunnelling. Difficult tie-in to NAL due to limited straights. Grade separation with NAL may require substantial land take. Platform changes needed for eastbound and westbound passengers.

Criterion	Score	Rationale
Economic Impact	2	Strong public transport connectivity and employment centre at New Lynn. Improves agglomeration and labour supply benefits. However, densification between New Lynn and Mt Roskill is limited due to topography.
Cost	-2	Tunnel operations introduce complexity and additional systems to maintain.
Third Party Funding	1	Little to no third-party funding opportunities identified.
Land Use & Acquisition	-3	Requires acquisition of high-density residential properties. This will require significant land take.
Community Impacts	-3	New designation not included in city planning. Construction will significantly impact the community and existing infrastructure. Retrofitting will undermine recent investments. Operational noise impact is lower due to likely trenching/tunnelling. Predominantly high-density residential and commercial areas affected. Community definition based solely on location.
Consenting	-3	Requires a new designation, posing significant consenting risks. Affects many properties and interests. Limited natural environment impacts.
Natural Hazard Exposure	0	Some flood-prone areas, but less exposure than other options.
Noise Pollution	-3	Route passes through residential areas, affecting many properties. Could be mitigated to -2 if tunnelling is confirmed.
Climate Change (Adaptation)	-1	Some exposure to flood-prone areas.
Alignment with Strategic Plans	2	Moderate alignment with RLTP. Consistent with Auckland Rapid Transit Pathway. Neutral alignment with RNIP and GPS. Strong employment centre connectivity supports RLTP alignment.
Urban Planning	-3	Not aligned with current or historic planning. Any deviation from this alignment would trigger new consenting, land acquisition, and community consultation processes. Recent infrastructure investments (e.g., under Roskill LSP) would be compromised.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Mode of Transport

- **Option 7: Heavy Rail**
- **Option 8: Light Rail**
- **Option 9: Bus Rapid Transit**
- **Option 10: Standard Bus**

Option 7: Heavy Rail — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand and Improving Connectivity, Frequency and Travel Time, & Integration with Existing Transport Infrastructure	3	Heavy rail supports both passenger and freight movement, removing freight from the core network. It enables system-wide improvements such as new stabling, level crossing removals, and turnback locations. Prevents congestion at Newmarket, supports growth, and integrates with existing infrastructure. Assumes Northport–Marsden Point Rail Link and Northwest logistics hub are operational.
Optimal Timetabling with Freight Destinations	3	Provides an alternate route for freight to Northland, bypassing the city centre. Enhances network flexibility and avoids bottlenecks, improving timetabling for both passenger and freight services.
Resilience of the Rail Network	3	Offers a secondary route for freight and passenger services, improving recovery from disruptions and enhancing overall network resilience.
Technical Feasibility	2	Electrified, signalled system with high reliability and potential for autonomous operations. Infrastructure-intensive but segregated from road traffic, ensuring high service reliability. Stations spaced 1–3 km apart.
Economic Impact	3	Strong agglomeration and labour supply benefits. Enhances connectivity to key employment centres and supports national productivity. Freight improvements contribute to GDP growth and emissions reduction.
Cost	-1	Higher O&M costs due to electrification, signalling, and specialized labour. However, mixed-mode use maximizes infrastructure value.
Third-Party Funding	2	Supports higher density uplift around stations and mixed-use development opportunities.
Alignment with Strategic Plans	3	Strong alignment with GPS, RNIP, and regional transport plans. Supports Auckland Rapid Transit Pathway and mode shift goals for both passengers and freight.

Criterion	Score	Rationale
Urban Planning	3	Enables higher density development supported by mass transit. Zoning provisions (MHU, THAB) allow uplift ratios of 1:3 to 1:8 in key precincts. Supported by international research linking density and transit use.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 8: Light Rail — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand and Improving Connectivity, Frequency and Travel Time, & Integration with Existing Transport Infrastructure	-2	Limited freight compatibility unless tram-train is used, which complicates integration. Forced interchanges reduce connectivity. Only potential benefit is if linked to Airport–Botany corridor. Marginal patronage shift, but significantly less effective than heavy rail.
Optimal Timetabling with Freight Destinations	-3	No benefit to freight. At best, marginal congestion relief for cars. Freight movement remains largely unaffected.
Resilience of the Rail Network	0	May support minor mode shift during peak periods but lacks the network effect and capacity of heavy rail. No impact on inter-regional freight.
Technical Feasibility	2	Operates within road corridors, introducing hazards and visual impacts. Frequent stops benefit passengers. Electrified systems in public streets rely on driver behaviour for safety. Maintenance must be planned outside operating hours.
Economic Impact	1	Some agglomeration and labour supply benefits but reduced compared to heavy rail. Sub-regional benefits possible but limited without broader network connectivity.
Cost	-2	Higher O&M costs than do-nothing. Requires new infrastructure and specialized labour. Single-use mode limits value for money.
Third-Party Funding	1	Medium-density uplift around stations with limited mixed-use opportunities.
Alignment with Strategic Plans	0	Inconsistent with GPS, Auckland RLTP, and Rapid Transit Pathway. No alignment with RNIP or freight-related plans. Moderate alignment with access and connectivity goals.
Urban Planning	2	Supports higher density development, though less effectively than heavy rail. KO notes future light rail corridors may drive development beyond MDRS provisions.

Criterion	Score	Rationale
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 9: Bus Rapid Transit — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand and Improving Connectivity, Frequency and Travel Time, & Integration with Existing Transport Infrastructure	-2	Does not remove freight from the core network. Integration is complicated due to forced interchanges. Only potential benefit is if linked to NWRT or Eastern Busway. Buses still interface with local roads, limiting seamless integration.
Optimal Timetabling with Freight Destinations	-3	No benefit to freight. Marginal congestion relief, but peak-hour delays still impact freight movement. Northern Busway example shows limited freight improvement.
Resilience of the Rail Network	-1	Buses must tie into existing infrastructure, adding friction and reducing network resilience.
Technical Feasibility	2	Dedicated lanes improve reliability, but buses still interact with other vehicles. Frequent stops benefit passengers. Simpler infrastructure allows maintenance during operating hours.
Economic Impact	1	Reduced agglomeration and labour supply benefits compared to LRT and heavy rail. Sub-regional benefits possible but limited by slower travel times and reduced capacity. Minimal freight benefits.
Cost	-2	Slightly higher O&M costs than do-nothing. Uses standard bus tech but requires upkeep of dedicated lanes. Single-use mode limits value for money.
Third-Party Funding	1	Lower density uplift and limited mixed-use development opportunities.
Alignment with Strategic Plans	1	Consistent with GPS for passenger transport. Unclear alignment with Auckland Rapid Transit Pathway. No alignment with RNIP or freight-related plans. Moderate alignment with access and connectivity goals.
Urban Planning	2	Supports higher density, though less effectively than rail modes. Some uplift potential based on housing demand dynamics.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Option 10: Standard Bus — summary of scoring rationale

Criterion	Score	Rationale
Passenger Demand and Improving Connectivity, Frequency and Travel Time, & Integration with Existing Transport Infrastructure	-3	Does not remove freight from the core network. Uncompetitive travel times, low capacity, and requires full corridor priority to offer any improvement over current state. Adds to congestion and is not viable due to journey time and traffic conditions.
Optimal Timetabling with Freight Destinations	-3	No benefit to freight. Marginal congestion relief, but peak-hour delays still impact movement.
Resilience of the Rail Network	-1	Adds to congestion. Not viable for supporting network resilience.
Technical Feasibility	3	Operates on existing roads with no land take. Uses standard infrastructure and allows maintenance during operating hours. Assumes diesel buses with on-street stops.
Economic Impact	0	No agglomeration or labour supply benefits. Minor peak mode shift potential, but no inter-peak or freight benefits.
Cost	0	Operationally similar to do-nothing. Uses existing infrastructure and standard maintenance. Single-use mode limits value for money.
Third-Party Funding	0	Lower density uplift and limited mixed-use development opportunities.
Alignment with Strategic Plans	0	Consistent with GPS and RLTP for passenger transport only. Not aligned with long-term Rapid Transit Pathway or RNIP. Minor alignment with access and connectivity goals.
Urban Planning	1	Supports higher density to a limited extent. Housing demand dynamics support some uplift.
Impact on te ao Māori	*Not scored*	Not assessed in this MCA.

Appendix 8 – Peer Reviewer Report

Avondale – Southdown Project Fatal Flaw Analysis Peer Review

John Williamson

June 2025

ascari Smart. Thinking. People.

Table of Contents

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Date 27th June 2025

Version Version 3.0

1 Summary

The purpose of the Fatal Flaw Analysis is to confirm route and mode assumptions (that the designated corridor is the right route and rail is the right mode). This peer review considers the robustness and defensibility of the tools used, the process followed and the outputs of the assessment.

2 Scope and Approach

The SMI team has adapted the New Zealand Transport Agency's (NZTA's) Early Assessment Sifting Tool (EAST) and Multi Criteria Analysis (MCA) guidance to develop the scoring framework and criteria for the project.

This peer review considers the robustness and defensibility of the tools used, the process followed by the SMI Team, and the outputs of the analysis. The peer reviewer includes

- Confirming a suitable range of options and alternatives have been considered and selected.
- Checking and advising on adherence to best practice for qualitative appraisal.

The key steps in the review are::

- Step 1: Review of the A-S EAST/Fatal Flaw analysis framework and assessment criteria to confirm their robustness and defensibility.
- Step 2: Review of the criteria scoring and rationale to ensure it is robust, defensible, repeatable and free of bias.
- Step 3: Confirm the robustness, defensibility and neutrality of the moderation process.
- Step 4: Confirm the robustness, defensibility and neutrality of the final criteria scoring and accompanying documentation.

The report also documents where relevant:

- Feedback provided to the SMI team.
- Issues raised during the review process.
- How the SMI team resolved feedback or issues.
- Any unresolved feedback or outstanding issues.
- The effect of any unresolved feedback or outstanding issues on the robustness, defensibility and neutrality of the fatal flaw analysis outputs.

3 Step 1: EAST Framework & Fatal Flaw Criteria

The assessment is being undertaken by mode and by route options for the north and south of the corridor (See Appendix 1 for summary of route options).

I have reviewed the A-S EAST/Fatal Flaw assessment criteria and included my full comments and suggestions are included in the notes in file '*20250304 A-S Criteria Workshop 5 JW comments copy.*xlsx' **(Appendix 2 and attached)** with comments in column G and suggestions in column H. I have also provided some more general observations (including on the Do Min) in the sheet 'Observations.'

Overall, in my view there was a good opportunity to simplify the assessment criteria and probably sharpen their focus too (which is quite usual in the development of the criteria). What I thought would be very helpful in this process would be a clear articulation of the project objective(s), to ensure the criteria helped to differentiate how the options performed in helping to achieve these.

Table A2.1 Summary of Observations

	High Level Observations
	Assessment
1	It would help to state the overarching 'purpose' or objectives of the project alongside the criteria, to be sure the criteria and assessment then need to take this into account
	e.g. Is it about the rail network or the transport network? Retaining the designation or building the project etc...
2	Some of the criteria are very high level (network focused) but others are very rail specific. It might be better to be more consistent on this point at this stage of investigation \
	Being clear on 'Purpose' would help with this.
3	There are too many criteria, with some duplication and double counting of effects.
	Options
1	Confirming a **suitable range of options and alternatives**
	It will be important to define the Do Minimum as I presume that this will form the baseline for the assessment

2	The two logical options for the Do Min are no corridor of the current designation The MBCM definition of the Do Minimum is as follows: *"For many transport activities, it is often not practical to do nothing. A certain minimum level of expenditure or activity may be required to maintain a minimum level of service. This minimum level of expenditure or activity and the resultant performance is known as the do-minimum, and should be used as the basis for analysis, rather than the do-nothing. It is important not to overstate the scope of the do-minimum.* ***The do-minimum may include maintaining the status quo and should account for committed and funded transport activities.*** Therefore, the Do Min may include status quo but it does not have to. From a consenting perspective it is important to fully test the pros and cons of all designation options and a do min of 'no designation' would help here. **The do minimum of no designated corridor is consistent with NZTA guidelines** Using this option as the Do Minimum will support a more transparent assessment of pros and cons of current designation against the other options.
3	Other options and alternatives? Are there any realistic sub-options e.g. variations on the heavy rail alignment etc?

Appendix 2 provides a summary of my comments and the revised assessment framework, which confirms the that the KiwiRail Team actively responded to many of the points raised in my review. In particular Table A2.2 illustrates the initial assessment criteria, my feedback and the final assessment criteria, demonstrating how my review was taken into account in the refinement of the assessment criteria.

4 Step 2: Review of MCA Scoring and Rationale

For Step 2 I was provided with:

- The master sheet of the A-S Modified MCA and the workshop minutes. This was a WIP representing the internal moderated findings of the KR / AT SME's.

I was asked by KR to Review of the scoring / rationale to ensure its robust, repeatable and free of bias.

General Observation on Fatal Flaw Analysis

A key issue to be aware of with fatal flaw analysis is providing confidence that the flaw is indeed fatal, for example are the effects so adverse as to be unacceptable and is there really no reasonable way to effectively avoid, mitigate or remedy the effect? These steps would ideally be taken into consideration before an option was deemed fatally flawed. Therefore, full transparency around this line of enquiry is crucial to ensure that the option assessment process is not vulnerable to challenge.

The first question I have considered is: Are there (or do there appear to be) any Fatal Flaws arising from the Assessment?

Route Eastern:

- Firstly, it appears to me that there is some cross-over in the rationale between Criteria 5 -Technical Feasibility and 12 Consenting for Route Eastern Option 3:
    - For example, under 5 -Technical Feasibility Construction it is noted that "Risk of reclamation not permitted or challenged by Mana Whenua or in Env Court."
        - In my view this is a consenting risk that would prevent construction.
        - The construction risk might be that consent conditions result in a design that is either impractical or too expensive to construct.
    - The consenting risk notes that the area concerned has a "Highly sensitive natural environment, and cultural values. Has a problematic consenting history."
    - Recommendation: In my view I think it would be wise to consider whether this option (Route Eastern Option 3) is fatally flawed from a consenting perspective, based on the rationale outlined above.
        - KR Team response: We have set this as an agenda item d for this Friday's [Moderation] workshop.
- For Route Western:
    - Option 2, Criteria 5 -Technical Feasibility: The rationale states that it is "*Not possible to route freight from north onto this option as connection is at an acute angle to NAL*"
        - My understanding is that a freight connection from the North is a non-negotiable element of the project. If so, then following the guidance above, the effects would be unacceptable.
        - And if that is the case and If the is no reasonable way to effectively avoid, mitigate or remedy this effect I would suggest consideration be given to this being a fatal flaw for Route Western – Option 2.
        - Recommendation: Consider whether Route Western Option 2 is fatally flawed with respect to being unable to route freight from north onto this Option.
            - In response to this the SME suggested this rewrite of the rationale: "Due to the acute angle between option 5 and the NAL, it will require a major divergence from the NAL to be able to route eastbound trains to this alignment or vice versa. This would result in significant infrastructure, property and budget to achieve this connection". This was also included as an agenda item for the moderation workshop to determine if this is a fatal flaw.
- Mode Options**:** I note that light rail and bus options do not address freight but I don't think that these should be ruled out on a fatal flaw basis as the more comprehensive assessment helps to identify the key trade-offs and constraints.

Review of the Assessment Material

- Is the scoring / rationale robust?
    - This has been undertaken by SMEs within KiwiRail/project Team
    - There is documented evidence provided in the MCA to support the scoring. But not clear whether there is any further technical work behind this (although it appears not)
    - Are there any criteria/scores that would benefit from further evidence in the MCA?
        - Mode: 17 Urban Planning: Is there evidence to support Heavy Rail leading to higher density in the future
            - KR Team response "The SME has updated his rationale for this in the master sheet above. I have also attached his evidence file"
- Is the scoring/rationale repeatable
    - This largely relies on the extent and quality of evidence used to support the assessment, and thus follows on from the point above.
    - In this case it is probably the referencing of the MCA rationale to any supporting technical work that will help to ensure that the assessment can be repeated and that there is some confidence that the results will match.
    - Suggestion: Add in references to the key supporting evidence/technical work.
        - KR Team response: A list of references has been provided to satisfy this requirement.
- Is the scoring / rationale free of bias
    - A little more subjective.
    - Relied heavily on KiwiRail SMEs which may give an appearance of potential bias. However, the narrative/rationale seems quite neutral and this is a rail designation.
    - Any examples of non-neutral narrative?
    - Mode - probably the part of the assessment that would be assumed to be most susceptible to bias. In my view it is generally quite neutral and well considered. The only obvious anomaly is:
        - 5 Technical Feasibility: score 0 for Option 10 Std Bus seems out of sync with the narrative as this would appear to be the most technically feasible?
        - Response from SME: This has been rescored as a 3.
    - Alignment Western: 17 Urban Planning: requires more information.
    - Alignment Eastern Mode: 8 Cost – Option 1 – requires a little more support for a positive score on cost e.g is this a lower cost outcome vs Do Min etc?
        - KR Team response: this is included as an agenda item for the moderation workshop.

Conclusion

Overall, the MCA appears to be broadly in line with others I have reviewed and this should provide comfort that the scoring / rationale meet the requirement of being robust, repeatable and free of bias.

In my view there are two route options (Route Eastern Option 3 and Route Western Option 2) that warrant consideration as to whether they are fatally flawed.

Note that post my review of this material KR will hold an external moderation workshop with NZTA and AT to allow the scoring to be challenged. This is reviewed in Step 3.

5 Step 3: Review of MCA Moderation Process

The purpose of Step 3 of this Review is: To confirm the robustness, defensibility and neutrality of the moderation process.

Recap on the Moderation Process:

The moderation process was undertaken via Moderation Workshop held on 23rd May attend by SMEs/scorers, the facilitator (JA) and independent moderators (AR from AT, KK and WW from NZTA) (the full list of attendees is provided in Appendix 3).

The stated purpose of the moderation workshop was to:

- Ensure a consistent approach to scoring and assessment
- Challenge and confirm scoring
- Identify any fatal flaws
- Identify actions post workshop to confirm scoring

The workshop was interpedently facilitated (John Allard). It also included moderators from AT (Aaron Rodrigues) and NZTA (Kathryn King and Wayne Wallace) to help ensure all views were made clear, challenged (including the risk of group think).

In terms of the NZTA option evaluation procedure, this assessment is an Early Assessment Sifting Tool (EAST) level assessment (e.g. pre full multi-criteria analysis).

Examples of the process from the Workshop

- The ratings between options vs DM/DN were considered to be not fully consistent (cost showed this). The agreed solution was that these would be adjusted after. I agree with this approach so long as the relativity between options is made clear and the results clearly communicated.
- Moderation was actively undertaken via the workshop and scores adjusted accordingly e.g. the re-assessing the relativity of scores between options and also comparing to a position where the DM =0.
- Criteria were reconsidered as necessary: Property Impacts (Eastern Connections) were considered to be more akin with community impacts. Agreed to change criteria to reflect this. The Operating cost criterion would benefit from simplification.

- The commentary on the range of alignment options was considered to need expanding in order to make very clear that all feasible options have been identified and that no other feasible options exist (e.g. expanding capacity of existing rail network was ruled out via the Rail PBC).
- The Mt Albert Western option was confirmed as being fatally flawed. I agree with this.
- In my view Route Eastern Option 3 is fatally flawed from a consenting perspective, based on the evidence considered and evidence from other projects (EWL).

My view on the robustness, defensibility and neutrality of the moderation process:

- The workshop followed best practice procedures.
- It was moderated by a highly experiences facilitator with oversight by others.
- Moderation was actively undertaken via the workshop and scores adjusted accordingly (e.g. relativity between options and also comparing to DM =0).
- Trade-offs were actively discussed.
- There is a risk of at the least a perception of a bias towards heavy rail given this is a KiwiRail led process. However, the fact is that this process is responding to the pending lapse of a heavy rail designation which has been in place for many years and which has been actively integrated into the future rail network. And from my perspective, the assessment demonstrates that heavy rail has been treated in a neutral way.

In my view this process meets the expectations and requirements for a Moderation Workshop.

6 Step 4: Final Scoring and Documentation

Step 4: Confirm the **robustness, defensibility and neutrality of the final criteria scoring and accompanying documentation**.

6.1 Final Scoring Process

This is a summary of the final criteria scoring process:

- Following the Moderation Workshop KiwiRail worked to finalise the externally moderated Fatal Flaw Analysis / Modified MCA. This is the aligned view from all Workshop attendees on the assessment of the corridor and mode options.
- I was provided with a set of minutes which detailed the changes which had been made to scoring / rationale during the workshop and the parking lot actions which list everything that the project team took away to consider post Workshop.
- The process followed post workshop was that KiwiRail considered the feedback provided and then made changes to the MCA, if required, only after consulting with the SME scorers. For any items where the SME(s) disagreed with the proposed changes, KiwiRail then provided further evidence to the Moderation group.
- The Moderation Workshop identified the need for a small number of additional criteria, which that subsequently developed and added to the MCA (e.g Community Impacts & Capital Costs on Mode). For these the project team created the initial

criterion and description, which then underwent an SMI review for finalisation of the description. The relevant SME then scored and provided rationale, which underwent another SMI review, and this was then sent to the moderation group for feedback.

- There were no further comments made regarding the MCA during the feedback window.

6.2 Documentation and Process Summary

I have reviewed the following documentation provided to me by KiwiRail post the Moderation Workshop:

- The Moderation Workshop minutes.
- Separate notes from the relevant SMEs regarding changes to the scoring of the Urban Planning, Technical Feasibility and 3rd Party Funding criteria.
- The updated MCA scoring sheets.

My views on the robustness, defensibility and neutrality of the moderation process:

In my view, this was a well-run, robust and transparent moderation process which adheres to the guidelines provided by NZTA.

The meeting minutes provide good documentation of the changes made during the workshop, including the SME's notes, in line with NZTA guidance. For example: [1]

- Alignment with Strategic Plans:
    - Mode Option 8 (Light Rail) – Changed from -1 to 0. Light rail is consistent with the longer-term strategic plans.
    - Mode Option 10 (Standard Bus) – Changed from 2 to 0. Bus rapid transit is more consistent with strategic plans than standard bus. Requiring a balancing act across the options.
- Technical feasibility:
    - Western Option 4 (Existing Avondale-Southdown alignment): This score changed from 3 to 0. It was clarified that like the other options, Option 4 requires grade separation which decreases its feasibility. However, unlike the other options, the space and geometric constraints of Option 4 mean grade separation can be more feasibly achieved. The relative scoring of 0 vs. -3 for the other two options reflects this.

The Parking Lot helps to clarify a number of important points. This includes the treatment of capital costs:

- Capital Cost: Issue - Capex costs need to be included for the mode options. Response - As discussed during the workshop this will be evaluated outside the MCA in a relative range. The SMI team and our SME's have assessed the options

[1] NZTA, 2023, Multi-criteria analysis user-guidance. p19.

and written up commentary, which is on a separate tab in the MCA master sheet. This has gone through a round of review within the SMI team.

- I agree with this approach which is consistent with best practice.

I note the importance of a well-documented MCA process in ensuring both transparency and replicability, so that a different specialist would be able to follow the logic and methodology set out in the supporting documentation and replicate the result.[2]

Therefore, if this has not already been done, it will be important to ensure that this process is clearly recorded in an Assessment Report (or similar), as I note that some of the information I have relied on outlining the process (and re-stated) here has been in the form of email communications.

In terms of neutrality, as noted already, there is a risk of a perception of a bias towards heavy rail given this is a KiwiRail led process. However, from my perspective, the mode options have been treated in a neutral way throughout the assessment.

6.3 Fatal flaws

I made an observation that there appear to be no fatal flaws identified for any of the options. The discussion around Option 3 for the Eastern Route, identified a very significant risk from a consenting perspective. As noted in the NZTA guidance, "a fatal flaw is a condition or circumstance that means the option will not be achieved or that a risk cannot be adequately mitigated, or it would be too detrimental to other outcomes to do so…Many fatal flaws relate to aspects which are not consentable under the RMA, where property cannot be acquired, or where unresolvable legal challenges may arise." [3]

It has been confirmed that this point will be mentioned in the write up of the MCA process instead of within the MCA. The moderation group agreed it necessary to highlight that although KiwiRail do not intend to proceed with Option 3 for the eastern route, it *appears* to be fatally flawed due to the complexity of the consenting process. I concur with this approach.

7 Overall Conclusion

Having reviewed the material provided and attended the Moderation Workshop, in my view this process has correctly followed the relevant guidelines and meets the requirements of a robust defensible and neutral process.

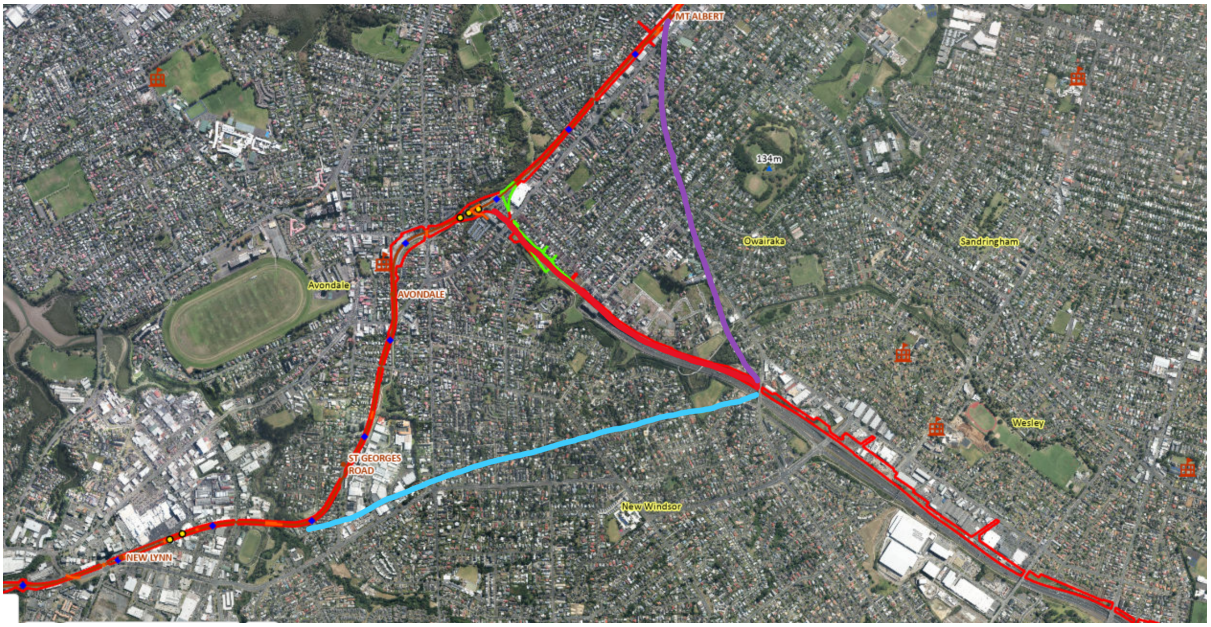
In my view the assessment provides confirmation that the designated corridor is the right route and rail is the right mode for the Avondale - Southdown corridor.

[2] NZTA, 2023, Multi-criteria analysis user-guidance. p19.
[3] NZTA, 2023, Multi-criteria analysis user-guidance. p19.

Appendix 1: Corridor Connection Options

Three route options were assessed for both the western and eastern sections of the corridor, including the current designation. For clarity the connection to the Western Line at Avondale relates to the existing designation and does not provide a connection to Avondale station.

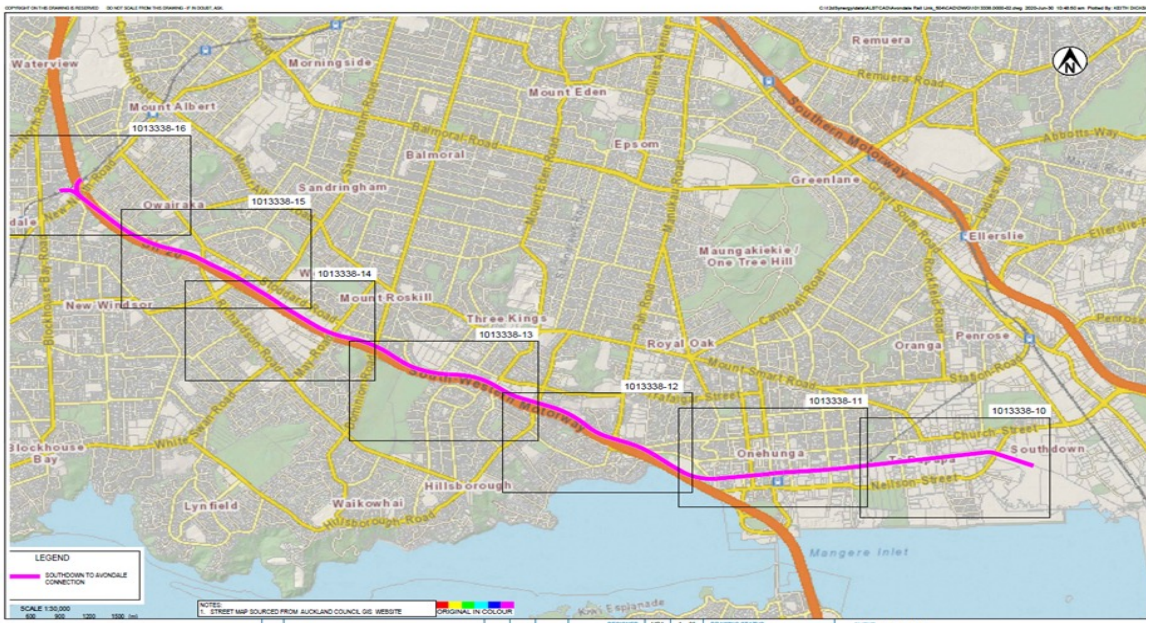
Western End Connections to the Western Line



Eastern End Connections

Route 1: Existing A-S Designation

Route Option 2: SH20 via Lagoon Route.



Route 3: East West Link Route

Appendix 2 A-S EAST Framework & Fatal Flaw Criteria

This section provides a summary of my comments with respect to the EAST Framework & Fatal Flaw Criteria and the revised assessment framework, which confirms the that the KiwiRail Team actively responded to many of the points raised in my review. More detail is provided in file '*20250304 A-S Criteria Workshop 5 JW comments copy.xlsx*'

Table A2.1 Summary of my Observations

	High Level Observations
	Assessment
1	It would help to state the overarching 'purpose' or objectives of the project alongside the criteria, to be sure the criteria and assessment then need to take this into account
	e.g. Is it about the rail network or the transport network? Retaining the designation or building the project etc...
2	Some of the criteria are very high level (network focused) but others are very rail specific. It might be better to be more consistent on this point at this stage of investigation
	Being clear on 'Purpose' would help with this.
3	There are too many criteria, with some duplication and double counting of effects.
	Options
1	Confirming a **suitable range of options and alternatives**
	It will be important to define the Do Minimum as I presume that this will form the baseline for the assessment
2	The two logical options for the Do Min are no corridor of the current designation The MBCM definition of the Do Minimum is as follows: *"For many transport activities, it is often not practical to do nothing. A certain minimum level of expenditure or activity may be required to maintain a minimum level of service. This minimum level of expenditure or activity and the resultant performance is known as the do-minimum, and should be used as the basis for analysis, rather than the do-nothing. It is important not to overstate the scope of the do-minimum.* ***The do-minimum may include maintaining the status quo and should account for committed and funded transport activities.*** Therefore, the Do Min may include status quo but it does not have to. From a consenting perspective it is important to fully test the pros and cons of all designation options and a do min of 'no designation' would help here. **The do minimum of no designated corridor is consistent with NZTA guidelines** Using this option as the Do Minimum will support a more transparent assessment of pros and cons of current designation against the other options
3	Other options and alternatives? Are there any realistic sub-options e.g. variations on the heavy rail alignment etc?

The following table illustrates the initial assessment criteria, my feedback and the final assessment criteria, demonstrating how my review was taken into account.

Table A2.2 initial assessment criteria, feedback and final assessment criteria

Ref	Criteria	Criteria Description	JW Notes	JW Suggested Simplifications
1	Technical Feasibility	How significantly do technical or practical constraints affect the feasibility of this option?	ok	Include 16 &17
2	Consentability	To what extent does consenting complexity pose a risk to project timeframes and delivery?	ok	Include 19 & part 22
3	Cost	To what extent does the long-term affordability of operating and maintaining this option impact the project owner?	Should this also include capital cost? Do we know who the project owner might be (and their capacity to absorb opex cost) for all options?	Whole of life (capital and operating) cost
4	Affordability	To what extent is this option likely to create opportunities e.g. for urban densification, to attract significant private sector or third-party funding opportunities?	Is this better titled 3rd Party Funding? I would consider wording this more openly to cover 3rd party funding of any sort (e.g. avoid ref to densification). There is a risk of duplication as densification also covered in 26 (and poss. 24)	Opportunity to realise 3rd party funding
6	reater Connectivi	To what extent does this option improve connectivity for under-served areas and improve travel convenience?	How would 'under served' areas be defined? (e.g. this description could apply to areas without services or areas with services and unmet demand etc) Which really comes down to 'demand'.	Combined 6&7: To what extent does this option help meet projected passenger demand? Potentially by location/corridor.
7	assenger Deman	To what extent does this option accommodate future growth in demand?	ok	
8	ency and Travel	To what extent does this option improve service frequency and reduce travel time within the wider transport network?	Passengers and freight ? If this refers to rail frequency and transport network travel time it sounds like 2 different questions. How would "reduce travel time within the wider transport network" be measured at this stage of investigation - MSM? I assume the frequency requirement will be satisfied if projected demand can be met (above)?	Travel time savings for users and other modes?
9	Efficiency and resilience of interregional freight movements	To what extent does this option provide sufficient capacity for freight movements, enabling rail freight to bypass the inner rail network?	Reads like this is really 3 different questions (ffficiency, resilience and capacity) . Look to simplify.	
10	Optimal Timetabling with Freight Destinations	To what extent does this option enable optimal timetabling to align with key freight destinations such as ports, ferries, and logistics hubs?	This seems rather operationally focused and too detailed for the designation phase, given the range of options? May lead to a need to ask a lot of other detailed questions about aspects of the other options too. Unless the 'objective' is about ensuring optimal freight services?	Combined 9,10 To what extent does this option help meet freight demand?
11	nce of the rail n	To what extent does this option enhance the rail network's resilience by reducing vulnerabilities, improving disruption management, and supporting sufficient maintenance windows?	Could be judged to pre-suppose an outcome , given range of options (the Rail network vs Transport network noting references to the transport network in other criteria e.g. 9?) Being clear on the project objective would help here. Also, there is duplication of resilience from 9 (I would think resilience of the network and of freight movements are the same thing). Maintenance seems to be a very specific rail consideration and not relevant to the non-rail options?	**If objective is about rail , then ...To what extent does this option enhance the rail network's resilience?**
12	l Use and Acquis	To what extent does this option require land acquisition, considering costs, resident displacement, and disruption to existing land use?	Risk of duplication with 13: Resident displacement and land use disruption sound more like considerations under Property Impacts.	**Extent of land acquisition required ?(cost, area, location)**
13	Property Impacts	To what extent does this option impact properties, including effects on businesses, access changes, and parking loss?	ok	
14	ural Hazard Expo	To what extent is this option exposed to risks from natural hazards such as earthquakes, landslips, flooding, and other environmental factors?	ok	
15	Carbon Emission	To what extent does this option contribute to carbon emissions during construction and operation?	Could be hard to estimate except at very high level at this stage of investigation?	
16	ater Manageme	To what extent is the water management infrastructure for this option feasible and cost-effective?	Stormwater? Is this a sub-set of 1?	Sub-set of 1?
17	echnical Constra	To what extent do geotechnical challenges impact construction and ongoing maintenance for this option?	How might this differ from technical or practical constraints in #1?	Sub-set of 1?
18	Noise Pollution	To what extent does this option generate excessive noise during operation, and how effectively can this impact be mitigated?	Is it too early to assess this? Or is this just a high level question e.g. properties within X metres of the corridor?	
19	tion to natural h	To what extent does this option impact natural habitats, ecosystems, and biodiversity?	ok (but sub-set of consentability so adding weight to this question)	Sub-set of 2?
20	e Change (Adapt	To what extent is this option exposed to excessive long-term physical climate change risks over time?	Is this at least a partial repeat of water (stormwater?) management from 16?	
21	Economic Impact	To what extent does this option influence economic development, impact business and employment opportunities at national, regional, and local levels?	ok but economic growth and productivity would fit better with GPS (at risk of double counting with 24 below)? Probably just high level indication at this stage?	To what extent does this option influence economic growth and productivity?
22	ge and Cultural H	To what extent does this option impact heritage sites or culturally significant areas, considering the feasibility of mitigation?	Is heritage a sub-set of consentability and cultural a sub-set of Impact on te ao Maori? So adding weight to these questions/criteria?	Sub-set of 2 &25?
23	with Existing Int	To what extent does this option integrate with existing transportation infrastructure, minimizing inefficiencies and operational challenges?	I would think all options do this but in different ways. Is the question : Which one best integrates with existing infrastructure given the desired objective(s)?	To what extent does this option integrate with existing infrastructure?
24	ent with Strateg	To what extent does this option align with New Zealand's national, regional and local wide strategic transportation plans and policies?	Potential for duplication between 24 and 26? Perhaps just ask about alignment with GPS and RLTP?	Alignment with GPS and RLTP?
25	pact on te ao Ma	To what extent does this option impact areas of significance to Māori, including Māori land, cultural heritage, and kaitiakitanga?	ok	
27	Urban Planning	To what extent does this option align with urban densification goals outlined in the Auckland Future Development Strategy and New Zealand's National Policy Statement on Urban Development?	Potential duplication between 24 and 27?	Alignment with Auckland Plan and NPS-UD?

Ref	Final Criteria	Criteria Description
1	Passenger Demand and Improving Connectivity	To what extent does this option help meet projected passenger demand? Potentially by location/corridor? *Please also consider: To what extent does this option improve connectivity for under-served areas and improve travel convenience?*
2	Frequency and Travel Time	To what extent does this option, including its use by both passenger and freight services, improve service frequency and reduce travel time within the wider transport network?
6	Integration with Existing transport Infrastructure	To what extent does this option integrate with existing transport infrastructure? *Please also consider : Minimizing inefficiencies and operational challenges?*
5	Technical feasibility	How significantly do technical or practical constraints affect the feasibility of this option? *Please also consider: To what extent is the water management infrastructure for this option feasible and cost-effective? To what extent do geotechnical challenges impact construction and ongoing maintenance for this option?*
7	Economic Impact	To what extent does this option influence economic growth and productivity? *Please also consider:* Opportunities at national, regional, and local levels?
8	Cost	To what extent does the long-term affordability of operating and maintaining this option impact the project owner?
9	3rd party funding	To what extent is this option likely to create opportunity to realise third-party funding?
10	Land Use and Acquisition	To what extent does this option require land acquisition? (cost, area, location)
11	Property Impacts	To what extent does this option impact properties, including effects on businesses, access changes, and parking loss?
12	Consenting	To what extent does consenting complexity pose a risk to project timeframes and delivery? *Please also consider: To what extent does this option impact heritage sites and culturally significant areas, considering the cost and feasibility of mitigation? To what extent does this option impact natural habitats, ecosystems, and biodiversity?*
13	Natural Hazard Exposure	To what extent is this option exposed to risks from natural hazards such as earthquakes, landslips, flooding, and other environmental factors?
14	Noise Pollution	To what extent does this option generate excessive noise during operation to e.g surrounding properties, and how effectively can this impact be mitigated?
15	Climate Change (Adaptation)	To what extent is this option exposed to excessive long-term physical climate change risks over time?
16	Alignment with Strategic Plans	To what extent does this option align with New Zealand's national, regional and local wide strategic transportation plans and policies?
17	Urban Planning	To what extent does this option align with urban densification goals outlined in the Auckland Future Development Strategy and New Zealand's National Policy Statement on Urban Development?
18	Impact on te ao Maori	To what extent does this option impact areas of significance to Māori, including Māori land, cultural heritage, and kaitiakitanga?